

HENVINET

Review of Decision Support Tools, recommendations

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Preface

This report is deliverable 4.3. of the project 'Health and Environment Network. The project was funded under EU Sixth Framework Programme of Research Thematic Area "Sustainable Development, Global Change and Ecosystems", Contract Number GOCE-CT-2006-037019. The aim of this project is to enhance the use of scientific knowledge in the field of environmental health, by providing networking facilities and scientific methods for support of science-policy interface.

The project contains 32 partners:

- Norwegian Institute for Air Research (NILU), NO
- National Veterinary Institute (NVI), NO
- The Ecobaby Foundation, NL
- University Hospitals Bristol NHS Foundation Trust, UK
- Public Health Services Gelderland Midden, NL
- Food and Environment Research Agency, UK
- Slovak Medical University, SK
- Institute of Food Bioresources (IBA), RO
- Italian National Agency for New Technologies, Energy and the Environment (ENEA), IT
- World Health Organization (WHO) –European Centre for Environment and Health, INO
- University of Hertfordshire, UK
- Netherlands Organisation for Applied Scientific Research (TNO), NL
- Finnish Meteorological Institute (FMI), FI
- Directorate General Joint Research Centre (JRC), INO
- Piemonte Region, IT
- Institute for Medical Research and Occupational Health, CR
- Umeå University, SE
- Slovak Technical University, SK
- Norwegian School of Veterinary Science (NVH), NO
- Stockholm University, SE
- University of Southern Denmark, DK
- Wageningen University, NL
- National Centre for Scientific Research "Demokritos", GR
- University of Oslo, NO
- Argentinean Association of Doctors for the Environment (AAMMA),AR
- Peking University School of Public Health, CN
- Integral University, IN
- National Cancer Research Institute, Genoa, IT
- eThekweni Municipality, ZA
- National Institute for Public Health of Mexico (INSP), MX
- National Institute of Health (ISS), IT
- University of Antwerp, BE

The project was structured into the following tasks:

- Evaluation of knowledge on environmental factors related to asthma and allergies, cancer, neurodevelopmental disorders, endocrine disruptors, as identified in the project Science, Children, Awareness, EU Legislation and Continuous Evaluation (SCALE, 2004–2010) consultation process by EU scientific experts. Now it is part of the EU Environment and Health Action Plan (EHAP) 2004-2010.
- Information on and evaluation of Decision Support Tools (DSTs) for practitioners related to the health end points. Here, DSTs mean models, software, guidelines, methodologies and/or data on environmental stressors emissions, their dispersion in the environment and pathways to humans, behaviour and exposure of population, final health effects with reference to the four priority diseases has been mentioned above, e.g. asthma and allergies, cancer, neurodevelopmental disorders and endocrine disrupter mediated-diseases.
- Direct stakeholder communication and interviews of environment and health actors.
- Creation of science-policy-interface based portal to facilitate access to relevant information and encourage contact and socialization between environment and health professionals.

This report provides a short overview of development of the decision support tools database in the HENVINET project. At the moment, the database is accessible from www.henvinet.eu or from <http://henvinet.nilu.no>, and is open to the public upon registration.

For more information, please contact the project coordinator Dr. Alena Bartonova, E-mail: aba@nilu.no or project manager Dr. Hai-Ying Liu, E-mail: hyl@nilu.no.



Project No. 037019
HENVINET
Health and Environment Network
Coordination Action

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1. Introduction

This report provides a short overview of development of the decision support tools database in the HENVINET project. At the moment, the database is accessible from www.henvinet.eu or from <http://henvinet.nilu.no>, and is open to the public upon registration.

Although our knowledge is limited and imperfect, we have learnt a lot on the health consequences of environmental stressors. Such knowledge is often accessible only to scientists or usable by a small community of experts, while a number of decision makers making decisions with consequences on our health makes a limited use of it. How can we make this knowledge more available for in decision making processes at all levels? How can this knowledge have an impact in daily life and in the planning of short-medium and long term actions and policies?

A key solution to the knowledge use dilemma is given by DSTs. Within HENVINET we defined DSTs as 'any tool based on E&H Knowledge that can be used for making decisions for reducing the negative health effects of the environment, from the daily operational level to the long term policy making perspective.

We have so far identified the following types of DSTs:

- Integrated software tools (modelling significant sections of the causal chain from sources to health effects)
- Specific Software Tools (focussing on a few rings of the chain)
- Web databases
- Methodologies (e.g. HIA)
- Handbooks (e.g. EUPHIDS)
- Frameworks for Decision Making
- Recommendations (e.g. for couples wishing a baby in polluted areas)
- Guidance (e.g. for estimating disease burden)
- Info and Knowledge System (e.g. ENHIS from WHO ECEH)
- Indicators

The HENVINET Meta DB provides easy access and management, and allows the user to browse data on identified DSTs, to input data on a new DST, to update the information, correct errors, or search for DSTs with specific characteristics. The MDB in particular allows to describe the purpose of the DST, its application areas, the expected users, the considered stressors and health outcomes, the validation-application.

Contact details of the owner and a summary have been collected for over 100 decision support tools. Normally, the information about a DST is entered into the database by the DST owner. In order to ensure some basic level of correctness of the information in the database, each member of the consortium has been assigned a number of decision support tools within their area of expertise, and asked to review the information submitted by the owners. This review also includes an assessment (evaluation) of the DSTs regarding their areas of use. At the moment, over 60 full records of DSTs have been reviewed by the consortium.

2. Structure of the metadatabase

During the 3rd year of the project, the design and functionalities of the metadata base of decision support tools have been defined and operationalized. The metadata base consists of three functionalities/modules:

1. Description of the decision support tool including evaluation,
2. Search of decision support tools (available for all fields of the database)
3. Comments

The metadata base of DST descriptions consists of a number of fields both with free text and with pre-selected options. There are two levels of organisation: the main descriptor fields and their attributes (fixed or free text). The descriptor system follows the structure of a full chain diagram or mind map (see D1.3 for an example). The main descriptor fields are:

1. **Title**
2. **Short abstract**
3. **Acronym**
4. **Long description**
5. **URL**
6. **Quality assurance/control:**
7. **Country/area of origin**
8. **Contact**
9. **Attached file**
10. **DST Category:**
11. **Thematic Area:**
12. **Specific stressor:**
13. **Type of stressor:**
14. **Sources of stressor:**
15. **Environmental matrix/pathways:**
16. **Exposure route:**
17. **Which disease(s)/health endpoints does you DST apply to?**
18. **Risk groups**
19. **Decision making area**
20. **Which administrative level uses the DST results?**
21. **The DST will be used by:**
22. **Personnel competency requirements:**
23. **Explain how this tool has been used**
24. **Why should this tool be used?:**
25. **Explain how the model takes into account uncertainty:**
26. **Explain how the DST has been validated:**
27. **Data input requirements:**
28. **Software required to use DST:**
29. **Funding Source:**
30. **Evaluation – User friendliness:**
31. **Evaluation – Causal chain approach:**
32. **Evaluation - robustness**
33. **Evaluation – User application history:**
34. **Evaluation – Applicability:**
35. **Evaluation – Uncertainty**

In the search module, the user can search both in the text fields and in the fixed attribute fields. In the comments module, the user can give comments to any aspect of the database.

There are four levels of users:

1. Public: can see the database, search and comment
2. Basic level user: has to register, can upload information about a DST and edit own records
3. Approved user/tutor: administrator can give rights to basic level users to edit all records
4. Administrator: any changes in the database.

All steps of the database functioning are explained in dedicated instructions to users.

3. Uploading and evaluating info on DSTs through the meta data base

This section describes how to upload and evaluate the information on the DSTs. Screenshots from the MDB are below shown. These pictures give a detailed idea of the fields and attributes agreed by HENVINET partners for describing the various categories of DSTs.

The two short guidelines uploaded in the web site are then shown. The first relates to the uploading of the info. The second one to the evaluation of the DST.

3.1 The META DATA BASE for DSTs

The Meta Data Base is gives the users the flexibility to either create data i.e. upload DST data or search data i.e. search between DSTs with specific attributes.

3.1.1 The “create data” mode of the MDB

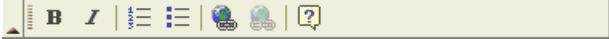
In the “create data” mode the user sees several dialog boxes spreading over two pages which should be filled as corresponds to the specific DST. The dialog boxes are in the form of free format entries e.g. “Short abstract” in Figure 3a or fields with predetermined attributes that allow multiple selection e.g. “DST Category” in Figure 3b is a field and “Database”, “Guideline”, “Handbook”, “Indicator”, “Methodology”, “Software model” are its attributes. At the end of the second page (Fig. 3d) the user finds the six evaluation fields in which only one attribute per field is to be selected.

New record [dst]

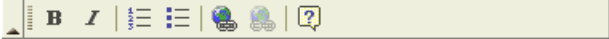
Title: *

Short abstract: *

Acronym:

Long description: 

URL:

QA/QC: 

Area of use:
Africa
Antarctic
Asia
Europe
Global
Hemispheric
North-America
Northern Hemisphere (NH)
Oceania

Availability:
Archived
Archived (on request)
CD-rom
Data Products (high level data available)

Select date range

Contact:

Language:
Danish
Dutch
English
Finnish

Attached file:

page 1 / 2

Figure 3a: 1st part of “create data” mode of the MDB

Creating new record of type 'dst':

DST Category: Database
 Guideline
Handbook
 Indicator
 Methodology
 Software Model
 Manage Attributes

Thematic Area: Dispersion processes and pathways
 Exposure of population
Fate of compounds in body
 Health end points
 Intake
 Overall evaluation
 Manage Attributes

Specific stressor: Allergens
 Ammonia
 Biological Toxins
Carbon Dioxide
 Carbon Monoxide
 Cold
 Dioxins and Furans
 Electromagnetic Radiation
 Environmental Tobacco Smoke
 Fibres
 Flame retardants
 Manage Attributes

Type of stressor: Accident
Behavioural
 Biological
 Chemical including odour
 Physical including noise
 Social
 Manage Attributes

Sources of stressor: Accidental release of substance
 Agriculture
 Combustion in energy and transformation industries
Combustion in manufacturing industry
 Electromagnetic fields
 Extraction/distribution of energy sources
 Industrial fire
 Non-industrial combustion plants
 Other mobile sources and machinery
 Production processes
 Road transport
 Manage Attributes

Environmental matrix /pathways: Air
 Consumer products
 Electromagnetic fields
 Food/Feed
 Medical
Noise fields
 Sediment
 Soil
 Surfaces
 Waste treatment
 Water
 Manage Attributes

Exposure route: -- NONE --
 Dermal absorption
 In utero
Ingestion
 Inhalation
 Manage Attributes

Figure 3b: 2nd part of “create data” mode of the MDB

Which disease/s does your DST apply to?:	<div style="border: 1px solid #ccc; padding: 2px;"> <div style="background-color: #4a7ebb; color: white; padding: 2px;">-- NONE --</div> <div style="padding: 2px;">Asthma/Allergies</div> <div style="padding: 2px;">Cancer</div> <div style="padding: 2px;">Endocrine disrupting effects</div> <div style="padding: 2px;">Neurodevelopmental disorders</div> <div style="padding: 2px;">...</div> </div> <div style="text-align: right; padding: 2px;"> ▲ ☰ ▼ </div>
	Manage Attributes
Risk groups:	<div style="border: 1px solid #ccc; padding: 2px;"> <div style="background-color: #4a7ebb; color: white; padding: 2px;">-- NONE --</div> <div style="padding: 2px;">Children</div> <div style="padding: 2px;">Elderly</div> <div style="padding: 2px;">Ethnicity</div> <div style="padding: 2px;">Gender</div> <div style="padding: 2px;">...</div> </div> <div style="text-align: right; padding: 2px;"> ▲ ☰ ▼ </div>
	Manage Attributes
Decision Making Area:	<div style="border: 1px solid #ccc; padding: 2px;"> <div style="background-color: #4a7ebb; color: white; padding: 2px;">-- NONE --</div> <div style="padding: 2px;">Agriculture</div> <div style="padding: 2px;">Air Quality management</div> <div style="padding: 2px;">Food quality</div> <div style="padding: 2px;">Land use</div> <div style="padding: 2px;">...</div> </div> <div style="text-align: right; padding: 2px;"> ▲ ☰ ▼ </div>
	Manage Attributes
Which Administrative level uses the DST Results?:	<div style="border: 1px solid #ccc; padding: 2px;"> <div style="background-color: #4a7ebb; color: white; padding: 2px;">-- NONE --</div> <div style="padding: 2px;">European level</div> <div style="padding: 2px;">Municipality/Urban</div> <div style="padding: 2px;">National authority</div> <div style="padding: 2px;">Primary health care</div> <div style="padding: 2px;">...</div> </div> <div style="text-align: right; padding: 2px;"> ▲ ☰ ▼ </div>
	Manage Attributes
The DST will be used by:	<div style="border: 1px solid #ccc; padding: 2px;"> <div style="background-color: #4a7ebb; color: white; padding: 2px;">-- NONE --</div> <div style="padding: 2px;">Administrator</div> <div style="padding: 2px;">Environmental professional</div> <div style="padding: 2px;">Health professional</div> <div style="padding: 2px;">Researcher</div> <div style="padding: 2px;">...</div> </div> <div style="text-align: right; padding: 2px;"> ▲ ☰ ▼ </div>
	Manage Attributes
Personnel competency requirements:	<div style="border: 1px solid #ccc; height: 40px;"></div>
Explain how this tool has been used:	<div style="border: 1px solid #ccc; height: 40px;"></div>
Why should this tool be used?:	<div style="border: 1px solid #ccc; height: 40px;"></div>
Explain how the model takes into account uncertainty.:	<div style="border: 1px solid #ccc; height: 40px;"></div>
Explain how the DST has been validated.:	<div style="border: 1px solid #ccc; height: 40px;"></div>

Figure 3c: 3rd part of “create data” mode of the MDB

Data input requirements:	<input type="text"/>
Software required to use DST:	<input type="text"/>
Funding Source:	-- NONE -- EC International National Other <input type="button" value="Manage Attributes"/>
Evaluation - User Friendliness:	-- NONE -- 1 Easy to use 2 Medium difficulty 3 Experienced user only <input type="button" value="Manage Attributes"/>
Evaluation - Causal Chain Approach:	-- NONE -- 1 Single level 2 Multi level 3 Full chain approach <input type="button" value="Manage Attributes"/>
Evaluation - Robustness:	-- NONE -- 1 Low 2 Medium 3 High <input type="button" value="Manage Attributes"/>
Evaluation - User Application History:	-- NONE -- 1 Occasional use 2 Frequent use 3 Systematic use <input type="button" value="Manage Attributes"/>
Evaluation - Applicability:	-- NONE -- 1 Case dependent 2 Wider usage 3 Universal <input type="button" value="Manage Attributes"/>
Evaluation - Uncertainty:	-- NONE -- 1 Not considered 2 Some analysis 3 Full analysis <input type="button" value="Manage Attributes"/>
<input type="button" value="Previous page"/> page 2 / 2 <input type="button" value="Cancel"/> <input type="button" value="Save Record"/>	

Figure 3d: 4th part of “create data” mode of the MDB

3.1.2 The “search data” mode of the MDB

In the “search data” mode the user can perform either a free-text search by entering several keywords in the first dialog box at the beginning of the page (Fig. 3e) or an advanced search by using the “advanced search utility” below the first dialog box. With latter choice the fields and attributes described in Chapter 3.1.1 appear enabling the user to select between them in order to acquire all relevant DSTs stored on the MDB. Multiple selections of attributes of each field can be performed except of the last 6 attributes, evaluation attributes (Fig. 3f) where only one attribute per field should be selected.

Decision Support Tools – MetaSearch

DST (52 records)

Free Text Search:

Select one or more metadatabases
(applies to freetext search only)

Advanced Search

DST Category (multiple select):

- None --
- Database
- Guideline
- Handbook
- Indicator

Thematic Area (multiple select):

- None --
- Dispersion processes and pathways
- Exposure of population
- Fate of compounds in body
- Health end points

Specific stressor (multiple select):

- None --
- Allergens
- Ammonia
- Biological Toxins
- Carbon Dioxide

Type of stressor (multiple select):

- None --
- Accident
- Behavioural
- Biological
- Chemical including odour

Sources of stressor (multiple select):

- None --
- Accidental release of substance
- Agriculture
- Combustion in energy and transformation indu:
- Combustion in manufacturing industry

Environmental matrix/pathways (multiple select):

- None --
- Air
- Consumer products
- Electromagnetic fields
- Food/Feed

Exposure route (multiple select):

- None --
- Dermal absorption
- In utero
- Ingestion
- Inhalation
- Medical application

Which disease/s does your DST apply to?
(multiple select):

- None --
- Asthma/Allergies
- Cancer
- Endocrine disrupting effects
- Neurodevelopmental disorders
- Several toxicological effects

Risk groups (multiple select):

- None --
- Children
- Elderly
- Ethnicity
- Gender

Decision Making Area (multiple select):

- None --
- Agriculture
- Air Quality management
- Food quality
- Land use

Which Administrative level uses the DST Results?
(multiple select):

- None --
- European level
- Municipality/Urban
- National authority
- Primary health care

The DST will be used by (multiple select):

- None --
- Administrator
- Environmental professional
- Health professional
- Researcher

Funding Source (multiple select):

- None --
- EC
- International
- National
- Other
- Self funding

Evaluation – User Friendliness (multiple select):

- None --
- 1 Easy to use
- 2 Medium difficulty
- 3 Experienced user only

Figure 3e: 1st part of “search data” mode of the MDB

<p>Specific stressor (multiple select):</p> <ul style="list-style-type: none"> -- None -- Allergens Ammonia Biological Toxins Carbon Dioxide 	<p>Type of stressor (multiple select):</p> <ul style="list-style-type: none"> -- None -- Accident Behavioural Biological Chemical including odour
<p>Sources of stressor (multiple select):</p> <ul style="list-style-type: none"> -- None -- Accidental release of substance Agriculture Combustion in energy and transformation indu: Combustion in manufacturing industry 	<p>Environmental matrix/pathways (multiple select):</p> <ul style="list-style-type: none"> -- None -- Air Consumer products Electromagnetic fields Food/Feed
<p>Exposure route (multiple select):</p> <ul style="list-style-type: none"> -- None -- Dermal absorption In utero Ingestion Inhalation Medical application 	<p>Which disease/s does your DST apply to? (multiple select):</p> <ul style="list-style-type: none"> -- None -- Asthma/Allergies Cancer Endocrine disrupting effects Neurodevelopmental disorders Several toxicological effects
<p>Risk groups (multiple select):</p> <ul style="list-style-type: none"> -- None -- Children Elderly Ethnicity Gender 	<p>Decision Making Area (multiple select):</p> <ul style="list-style-type: none"> -- None -- Agriculture Air Quality management Food quality Land use
<p>Which Administrative level uses the DST Results? (multiple select):</p> <ul style="list-style-type: none"> -- None -- European level Municipality/Urban National authority Primary health care 	<p>The DST will be used by (multiple select):</p> <ul style="list-style-type: none"> -- None -- Administrator Environmental professional Health professional Researcher
<p>Funding Source (multiple select):</p> <ul style="list-style-type: none"> -- None -- EC International National Other Self funding 	<p>Evaluation – User Friendliness (multiple select):</p> <ul style="list-style-type: none"> -- None -- 1 Easy to use 2 Medium difficulty 3 Experienced user only
<p>Evaluation – Causal Chain Approach (multiple select):</p> <ul style="list-style-type: none"> -- None -- 1 Single level 2 Multi level 3 Full chain approach 	<p>Evaluation – Robustness (multiple select):</p> <ul style="list-style-type: none"> -- None -- 1 Low 2 Medium 3 High
<p>Evaluation – User Application History (multiple select):</p> <ul style="list-style-type: none"> -- None -- 1 Occasional use 2 Frequent use 3 Systematic use 	<p>Evaluation – Applicability (multiple select):</p> <ul style="list-style-type: none"> -- None -- 1 Case dependent 2 Wider usage 3 Universal
<p>Evaluation – Uncertainty (multiple select):</p> <ul style="list-style-type: none"> -- None -- 1 Not considered 2 Some analysis 3 Full analysis 	
<p>Reset</p>	

Figure 3f: 2nd part of “search data” mode of the MDB

3.2 Guidelines for uploading and evaluating DSTs

In an effort to accelerate the MDB processes two versions of guidelines have been written in a step-by-step rationale so as to save the user's time and minimize ones reading/understanding efforts before uploading data.

- The first version concerns the creating/modifying of DST data and it is divided into 6 simple steps beginning from where to find the URL and how to sign up and then uploading info with specific paradigms. It concludes with explanation on how to save the data and at the end it includes explanation of how to fill certain fields
- The second version concerns the evaluation of the DSTs and is again divided into 5 simple steps beginning from accessing the MDB and signing up and then evaluating the DSTs through specific fields. It concludes with explanation on saving the evaluation whereas at the end there is an explanation of the rationale on which the attributes of the evaluation fields are based in order to help the user to make the optimal selection.

These guidelines were made available to all consortium members and can be downloaded at the login-page of the MDB so that they can be directly usable by a first-time MDB user or a user performing a specific task that requires guidance.

[GENERAL USER GUIDELINES: STEPS FOR CREATING/MODIFYING DST-DATA IN THE METADATABASE](#)

Step 1:

Go to: <http://henvinet.nilu.no/>

Under "HENVINET TOOLS" on the left menu click "Metadata base". Review the information on this page.

Click "[Go to the MDB login](#)".

Attention: Cookies must be allowed on your Internet browser (your security must be set to Medium).

Step 2:

either

a) Click "Sign-up" if you are a first-time user of the Metadata base. Enter you details and proceed to

Step 3

or

b) Login if you already are a registered user and proceed to Step 3

Step 3:

Click “Create Data”

Select “decision support tools” from the “select Metadata base” drop-down list

Click “DST”

Step 4:

Start entering the data of your DST in the two page form (see also ‘IMPORTANT’ at the end of this document for an explanation of the fields).

In this form you see several *fields* and their *attributes*. A *field* is for example “Specific stressor” (4th on page 2/2) and its *attributes* are “NOX”, “Nanoparticles”, “Pesticides”.

Select one or more (by clicking whilst keeping the Ctrl key pressed on your keyboard) attributes from each field that describe your DST (see also [Step 5](#)).

Step 5 (optional)

You can add additional attributes to a field for better describing your DST.

Example: In the field “Contact”.

- i) Press “Add/Edit Contact”.
- ii) In the new dialog box insert the contact of your choice by entering contact details.
- iii) Then press “adds contact” and then “close window”.
- iv) Your contact is a new attribute in the field “Contact” and can now be selected from the drop down menu.

Similar steps should be followed for entering a new institute for the contact in (ii) above.

Step 6

Save your work by clicking “Save record” on page 2/2 when you finish.

To view/edit/modify your input

- i) Click on “main” at the upper left side
- ii) Click “Modify Data”
- iii) Select “decision support tools” from the “select Metadata base” drop-down list.
- iv) Click “DST”

IMPORTANT (Explanation of 1st page fields)

Title: This is the DST name or title

Short abstract: A brief description of the DST

Acronym: Acronym or short name DST

Long description: detailed description of DST. Should include specific information e.g. chemical compounds, models used, input data, output, target group

URL: URL to the DST if available.

QA/QC: If the DST has undergone any quality assurance or control, please describe.

Area of Use: Where the DST can be used.

Contact: Contact person who can provide more information for the DST.

Attached file: You can upload a single file such as a document (or a zip file containing many documents). You can only upload one document.

[EVALUATION GUIDELINES:
STEPS FOR EVALUATING DSTs ON THE METADATABASE](#)

Step 1:

Go to: <http://henvinet.nilu.no/>

Under “HENVINET TOOLS” on the left menu click “Metadata base”. Review the information on this page.

Click “[Go to the MDB login](#)”.

Attention: Cookies must be allowed on your Internet browser (your security must be set to Medium).

Step 2:

either

a) Click “Sign-up” if you are a first-time user of the Metadata base. Enter your details and proceed to [Step 3](#)

or

b) Login if you already are a registered user and proceed to [Step 3](#)

Step 3:

Click “Modify Data”

Select “decision support tools” from the “select metadata base” drop-down list

Click “DST”

In the table of DSTs that appears click “edit” next to the desired DST

Step 4:

Click on “Next Page” at the end of the current page (evaluation is on page 2/2)

In this form you see several *fields* and their *attributes*. A *field* is for example “Evaluation - Robustness” (on page 2/2) and its *attributes* are “Low”, “Medium” and “High”.

The fields that concern evaluation are those starting with the word “Evaluation” (last six on page 2/2). Select one attribute from each of these fields that better evaluate the selected DST (See also ‘IMPORTANT’ at the end of this document).

Step 5:

Save your work by clicking “Save record” on page 2/2 when you finish.

To view/edit/modify your input

- v) Click on “main” at the upper left side
- vi) Click “Modify Data”
- vii) Select “decision support tools” from the “select metadata base” drop-down list.

viii) Click “DST”

IMPORTANT (Explanation of evaluation fields)

User friendliness: How easy is it for the user to use the DST? Consider if training is necessary, or referral to a user manual, or is it intuitive to the user.

Causal Change Approach: How does the DST relate to the Causal Chain?

Robustness: How reliable is the DST? Does the DST perform well not only under ordinary conditions but also under unusual conditions that stress its designers' assumptions?

User Application History: How often has the DST been used?

Applicability: How widely can the DST be applied?

Uncertainty: Has the DST been given a thorough review with regard to uncertainty?

3.3 Evaluation framework

The evaluation frame drafted in Deliverable 4.2 was revised in early 2009. Partners agreed to consider only 6 ‘topics’ of evaluation. Still we kept the decision of using three levels of ‘judgement’ i.e. qualities.

Table 3g Evaluation Criteria for DSTs

Criteria	DST Summary of qualities		
User Friendliness	Easy to use: can be used by administrators just reading the manual	Medium difficulty: a technician can use it after a short course	Experienced user only: Requires one/more professional with specific experience
Causal Chain Approach	Single level: 1 ring of the chain	Multi level: at least three	Full chain approach
Robustness	Low: core model defined /published by consultancies/interest groups	Medium: Core model defined and/or published in project reports/ institutes reports / governmental institution reports	High: Core model based on peer reviewed studies
User Application History	Occasional use: not necessarily followed by policy actions or measures (e.g. research purposes, scientific)	Frequent use: by stakeholder, usually accompanied by concrete policy-relevant measures	Systematic use: by a user different that the developer
Applicability	Case dependant	Wider usage: Applicable only for a given region/population/environment	Universal
Un-certainty	Not considered	Some analysis	Full analysis

4. Next actions

By the end of the HENVINET Project, WP4 will achieve the following goals:

- a) the completion of the collection of essential information on the around 100 identified DSTs
- b) the uploading in the Meta Data Base of such information, in cooperation with the identified Tutors and Supervisors
- c) the drawing of conclusions on the various categories of DSTs with reference to both the technical characteristics, the applicability for decision making in the E&H world, and the evaluation contents
- d) the production of dissemination material in cooperation with WP3 leader
- e) the preparation of the final WP4 : Deliverable 4.4
- f) The preparation of communication/dissemination material in view of the Final Conference.

5. Example: Air quality related decision support system

Human health is intimately connected to the surrounding environment through interactions that are not well enough understood. In addition to the contamination of soil and water resources, the pollution of air and other forms of environmental damage present in human environment are also involved.

One of the main sources of atmospheric pollution in urban areas is motor vehicle emissions. In many urban areas, increased road vehicles usage has resulted in a detrimental effect on air quality. Traffic emissions are in addition to background levels (which encompass natural, man-made and transported pollutants). Scientific research has shown that prolonged exposure to these pollutants above a specific level may be harmful to human health. It is these peak exposure values that have formed the basis for existing air quality targets (as stipulated by the World Health Organisation and the European Union Air Quality Directives. If the ambient air quality is unlikely to meet existing air quality standards, local authorities are required to devise, test and implement pollution control policies.

It is estimated that road transport contributes in most European cities more than 40% of emissions of volatile organic compounds (VOC), more than 70% of nitrogen oxides (NO_x) and over 90% of the emissions of carbon monoxide (CO). Many of these pollutants have injurious effects on human health, vegetation and material, besides contributing to altering the atmospheric characteristics. Urban traffic is actually the main cause for the health-critical concentration of near-surface ozone typically for hot mid-summer periods in urban areas. The growing traffic demand together with an increase of exhaust gas emissions and travel times on the one hand, and the likewise growing need for mobility on the other, requires the realization of measures and policies for a better traffic control and planning. Aiming at shorter travel times and a reduction of air pollution, these measures include for example traffic control strategies (rerouting) and the shifting from car traffic to public transportation.

At present computer based decision support systems for urban air quality management are applied in major cities in the world. The application of decision support systems is an opportunity for improving air quality planning in the largest cities. These decision support systems generally encompass air quality monitoring, emission inventories, air quality modelling, air quality mapping and air quality impact assessment of various control strategies in support of evaluation of action plans by using information to the public about past and present air quality levels. The basic idea of this kind of decision support systems is to improve the decision making process for policy makers by providing a professional tool to assist air quality planning.

Another source of air pollution is industry related activities. Lead, which is associated with smelting, is a toxic pollutant that is absorbed by the pulmonary and gastrointestinal routes and causes neuro-behavioural problems, learning disabilities, and mental retardation in children. Because of their behaviour,

especially their hand-to-mouth activity, young children (0–6 years) are particularly exposed to leaded dust, both in dwellings with old lead paint and around industrial sites with past or ongoing lead emissions. The impact of industrial lead sources on the blood lead level (BLL) of children living nearby was first noticed a century ago and has been widely documented since the 1970s. The influence of emissions persists long after they stop: lead's persistence in soils and dust makes their ingestion an important exposure pathway for children in such an environment (Glorennec & Declercq, 2006).

Traffic induced air pollution and industry generated lead contamination are just two relevant examples of environmental problems created by human activities, having a potentially significant impact on human health.

Following the rationale presented by Agrawal et al. (2003) the various components of a general DSS focussed on air pollution can be given in Figure 5a.

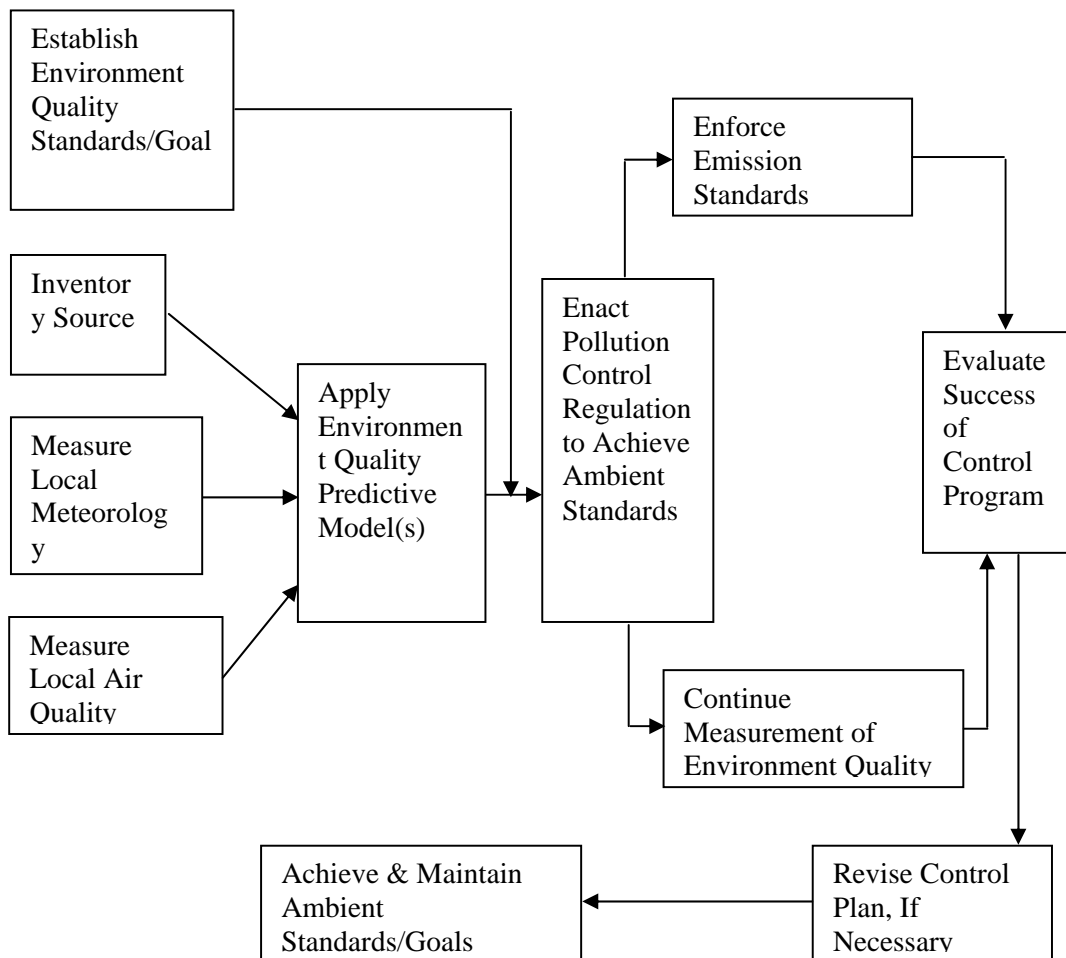


Figure 5a Various Components of an Air Quality related Decision Support Tool

Unfortunately current environment is affected by many other factors (usually classified as ‘environmental stressors’) that lead to complicate processes (causal

chains) having as end-points a variety of negative health effects on human beings. The description of such causal chains includes a number of physical, chemical, biological and behavioural processes. The current knowledge on these processes is often incomplete and rich with uncertainties, but nevertheless a number of scientists worldwide are trying since a few decades to assemble the available knowledge into software tools that can be used for helping the decision processes. Within HENVINET the decision context being considered is not only the policies planning level (for which many of the most sophisticated tools have been conceived, built and used) but also the everyday operational level of practitioners in the field of 'Environment and Health'.

With such a broader view at the issue of Decision Making in the 'E&H' sector we can identify a wider world of Decision Support Tools, also including Databases, Guidelines, and Indicators etc that can be used in different areas where decisions have to be taken.

The main goal of HENVINET Work Package 4 is identifying and discusses the existing DSTs in the E&H sector, following this very wide definition of the decision context and a fully international approach going well beyond EU boundaries.

The main activities within WP4 along the third year of activity have been:

- Final Agreement of E&H DST definition : this achievement allowed the broadening of the research of DSTs categories from top level integrated software tools covering the whole causal chain to simple indicators for everyday practitioners in E&H activities.
- Full revision of Fields and Attributes in the DST MDB : this was a 'looping' process rather iterative and with a number of discussions both in meetings and via email, with a high final contribution from most of the partners
- Cooperation with WP2 in MDB finalisation: this concerned a variety of aspects of the MDB design and implementation ranging from the selection of the parameters through which describe the DSTs, to the testing and filling of the DSTs MDB, to the rationale for inputting, revising, evaluating and publishing the contents on the DSTs.
- Joint Testing of MDB usage, filling, updating: a number of partners were involved in the testing of the DSTs MDB (how to upload info, how to change, how to approve....) and also this work turned to be an iterative effort, with feedbacks from users and new upgrades from developers.
- Collection of DST contact forms up to n. 96 : also as a consequence of the broader concept of E&H DST adopted in Luxembourg meeting in Nov 2008, new DSTs have been identified and entered the process of introduction in the MDB system (identification of Tutor and Supervisor, input, revision, publication....)
- Identification of all Tutors for DSTs: this revealed to be not a banal task as sometimes hoped, since in several cases the contact persons declared not to be 'fitted' for inputting the adequate info on a given

DST. Criteria were so agreed for identifying more proper Tutors and in many cases Partners colleagues took the responsibility of acting as Tutors (those who upload the requested info).

- Pressure on tutors for info uploading, was one of the special tasks of WP4 leader having to cope with ‘always too busy’ colleagues worldwide and so forced by necessity to adopt more personalised and individual invitations for obtaining the expected cooperation.
- Definition of Supervisor role and identification of ‘actors’: Supervisors complement the work of Tutors and eliminate possible conflicts of interest along the ‘evaluation’ of DSTs. Through a ‘case by case’ approach WP4 leader has identified a good number of Supervisors among HENVINET partners.
- Revision / Simplification of the DST Evaluation frame: this has led to the consideration of 6 fundamental questions (with 3 levels possible replies) as it regards the assessment and usability of the DSTs.
- On line Guidelines for inputting and evaluating DST info: a joint ENEA – Demokritos effort produced two short guidelines that are now on line and ease the access of the web site visitor to the world of the DSTs Meta Data Base.
- Drafting of presentations / dissemination material for Zagreb workshop (Nov2009) and Rome ISS event (Dec 2009).
- DST linked topics entering the Networking Portal : some topics of discussion have been identified that relate more or less strictly to DSTs (e.g. we have one for DSTs and one for Transport related Air Pollution).

These activities performed along the third year of HENVINET Project life has led to:

- a) the identification of around one hundred E&H DSTs
- b) the creation of a DSTs Meta Data Base accessible through the HENVINET portal and website
- c) the collection of detailed information on roughly 50% of these DSTs in cooperation with experts outside and inside the HENVINET consortium
- d) the finalisation of the DSTs evaluation approach
- e) the possibility of drawing the first conclusions and consequences on E&H DSTs.

6. Identified DSTs

In order to gather information on existing DSTs that can be used in the sector of Environment and Health appropriate contact forms have been distributed to either DST developers/providers or DST users or even simply people informed on a given DST.

This contact form consisted of two parts namely the contact person basic info and the DST summary info. The first part included details on the contact person and the person's organisation whereas the second part included details on the DST such as its category, a reference web link and a short description about the role and contents of the DST.

This action was started in 2008 and continued along year 2009. The current result is the identification of around 100 DSTs. The list of these DSTs and essential information on the persons in charge of providing, assessing and publishing through the portal Meta Data Base the details on the DSTs is reported in the table 6a below.

With the term 'tutors' we classify essentially the 'contact persons' that have informed HENVINET WP4 partners of the existence of the DST. In a few cases the initial Contact Person did not wish to act as 'tutor' due to a limited knowledge of the details of that DST and was replaced by a more expert colleague, either internal or external to the HENVINET partnership.

Supervisors are instead experts complementing the action of the tutor. In general the Supervisor was defined as an expert having to assess the details uploaded in the MDB by the tutor, evaluate the DSTs by using the six fields dedicated to this aspect in the MDB, and publish the contents through the MDB that can be browsed by external users through the HENVINET web site.

The collection of the contacts forms received for these DSTs is reported below.

Table 6a: Identified DSTs in the E&H sector

No.	DST name	Ref. Organisation	Country	email	DST Ref. Info provider (Tutor)	Supervisor (for publication, evaluation and 'emergency' data provision in case the Tutor fails)
1	<u>ISHTAR Suite</u>	ENEA	Italy	negrenti@enea.it	Emanuele Negrenti	Emanuele Negrenti
2	<u>OSCAR</u>	UH	UK	r.s.sokhi@herts.ac.uk	Ranjeet Sokhi	Ranjeet Sokhi
3	<u>ICAROS NET</u>	JRC	Italy	Dimosthenis.SARIGIANNIS@ec.europa.eu	Denis Sarigiannis	PLRS 2-11-09
4	<u>AirQUIS</u>	NILU	Norway	ruo@nilu.no	Rune Ødegård	PLRS 2-11-09
5	<u>STEDOM</u>	TUC	Greece	vic.aleksandropoulou@enveng.tuc.gr	Victoria Aleksandropoulou	
6	<u>HYSPLIT</u>	NOAA ARL	USA	Roland.draxler@noaa.gov	Roland Draxler	PLRS 4-11-09
7	<u>RODOS</u>	FZK	Germany	wolfgang.raskob@iket.fzk.de	Wolfgang Raskob	PLRS 4-11-09
8	<u>HIA</u>	WHO	Switzerland	EBDassessment@who.int mak@euro.who.int	Martin Von Krauss	Martin Von Krauss PLRS 5-11
9	<u>TDSS</u>	ECN	Netherlands	Domburg@ecn.nl	P Domburg ECN	PLRS 4-11-09
10	<u>SKIRON, CAMx</u>	NKUA	Greece	kallos@mg.uoa.gr	George Kallos	PLRS 4-11-09
11	<u>Bioassay-directed monitoring strategy</u>	Waternet	Netherlands	Ron.van.der.oost@waternet.nl	Ron van der Oost	
12	<u>MAMPEC</u>	IVM	Netherlands	bert.van.hattum@ivm.falw.vu.nl	Bert van Hattum	
13	<u>EUSES (EUROPEAN UNION SYSTEM FOR THE EVALUATION OF SUBSTANCES)</u>	JRC IHCP	Italy	ana.paya-perez@ec.europa.eu	Ana Paya-Perez	Murk Tinka – WUR And JRC Ispra

14	<u>EPIC-SOFT</u>	IBA	Romania	tbi	tbi	
15	<u>Framework for Decision Making in the Field of Environment and Health (FDME&H)</u>	RIVM	Netherlands	Mark.van.bruggen@rivm.nl	Mark Van Bruggen	David Ludlow UWE And Peter Van Den Hazel
16	<u>Preconception counselling</u>	Ecobaby Foundation	Netherlands	Jann.Koppe@inter.nl.net	Koppe Janna	Koppe Janna
17	<u>URBIS</u>	TNO	Netherlands	<u>Jeroen.Borst@tno.nl</u>	Jeroen Borst	ENEA Or David Ludlow UWE
18	<u>UDM-FMI, CAR-FMI and EXPAND</u>	FMI	Finland	<u>mia.pohjola@fmi.fi</u>	Mia Pohjola	
19	<u>Practical guidance for assessment of disease burden at national and local levels</u>	WHO	Switzerland	<u>EBDassessment@who.int</u> mak@euro.who.int	Martin von Krauss	Martin von Krauss
20	<u>ENHIS</u>	WHO	Germany	<u>info@ecehbonn.euro.who.int</u> mak@euro.who.int	Martin von Krauss	Martin von Krauss Or David Ludlow UWE
21	City and Environment Health Effects Screening	Bureau Medische Milieukunde Jans, van den Hazel & van de Weerdt	Netherlands	Peter Van den Hazel	Peter Van den Hazel	David Ludlow UWE
22	<u>INTARESE</u>	Imperial College	London	<u>j.grellier@imperial.ac.uk</u>	James Grellier	David Ludlow UWE

23	<u>EROD Assay</u>	Research Center for Environment and Health	Germany	schramm@gsf.de	Karl-Werner Schramm	
24	<u>SuSAP</u>	ERSAF	Italy	carlo.riparbelli@ersaf.lombardia.it	Carlo Riparbelli	
25	<u>Platform for Exposure Assessment</u>	KTL	Finland	Arja.Asikainen@ktl.fi	Arja Asikainen	
26	<u>WATSON</u>	IER	Germany	Peter.Fantke@ier.uni-stuttgart.de	Peter Fantke	
27	<u>SVOD</u>	IBA	Czech Republic	dusek@iba.muni.cz	Ladislav Dusek	
28	<u>RAINS Italy</u>	ENEA	Italy	Tiziano.Pignatelli@ENEA.it	Tiziano Pignatelli	Emanuele Negrenti
29	<u>Exposure</u>	Image et Ville, CNRS	France	Arnaud.banos@lorraine.u-strasbg.fr	Arnaud Banos	
30	<u>Joaquín de Lapuente</u>	PCB (Barcelona Science Park)	Spain	jlapuente@pcb.ub.cat	Joaquín De Lapuente	
31	<u>WATERSHEDSS</u>	NC SU Water Quality Group	USA	deanna_osmond@ncsu.edu	(recent) Deanna L. Osmond	
32	<u>CLARINET</u>	R3 Environmental Technologies Limited	UK	paul@r3environmental.co.uk	Paul Bardos	
33	<u>EUPHIDS</u> (European Pesticide Hazard Information and Decision)	National Institute of Public Health and the Environment	Netherlands	Dick van den Hout		

	Support System)					
34	<u>Environmental Information Management and Decision Support System</u>	TRB	USA	http://rip.trb.org/browse/dproject.asp?n=4507 McCready, Ronald D. rmccready@nas.edu Judith H. Dotson, Phone: (703) 902-4779	(recent) R McCready	David Ludlow UWE
35	<u>TEAP</u>	Environmental Software and Modelling Group	Spain	roberto@fi.upm.es	Roberto San Jose	Panos Neofytou
36	<u>AirGIS</u>	National Environmental Research Institute (NERI)	Denmark	ssj@dmu.dk	S. Jensen	NILU
37	<u>AREM</u>	Politecnico Di Milano	Italy	g.finzi@polimi.it (???)	G. Finzi (???)	ENEA
38	<u>SIMTRAP</u>	PTV	Germany	klaus.noekel@ptv.de	K. Noekel	ENEA
39	<u>IMPAQT</u>	MMU (Manchester Metropolitan University)	UK	l.lim@mmu.ac.uk	L. Lim	UH (Ravindra)
40	<u>GIS based Air Pollution Model</u>	Dokuz Eylul University	Turkey	tolga.elbir@deu.edu.tr	T. Elbir	NILU
41	<u>AirWare</u>	Environmental Software and Services GmbH	Austria	info@ess.co.at	ESS Staff to be identified	NILU
42	<u>EnviMan</u>	Ecotech	Australia	michael.powell@ecotech.com.au	Michael Powell	TNO
43	<u>EDSS</u>	MCNC-North Carolina Supercomputing Center	USA	fine@mcnc.org (??)	Mr S.S. Fine	
44	<u>AirControlNET</u>	Environmental Protection Agency	USA	misenheimer.david@epa.gov	Recent David Misenheimer	
45	<u>IPM</u>	Environmental Protection	USA	grisier.mary@epa.gov	Recent Mary Grisier	

		Agency				
46	<u>BenMAP</u>	Environmental Protection Agency	USA	benmap@epa.gov, neal.fann@epa.gov (??)	Neal Fann	
47	<u>MIT IGSM EPPA</u>	MIT	USA	globalchange@mit.edu jreilly@mit.edu hjacob@mit.edu	Henry Jacoby Or Dr. John M. Reilly	
48	<u>SGM</u>	Pacific Northwest National Laboratory	USA	ca.geffen@pnl.gov	C Geffen	
49	<u>MiniCAM</u>	Pacific Northwest National Laboratory	USA	ca.geffen@pnl.gov	C Geffen	
50	<u>TRIM</u>	Environmental Protection Agency	USA	murphy.deirdre@epa.gov	M Deirdre	
51	<u>AIDAIR tool</u> (Airware sw from project AIDAIR)	Environmental Software and Services GmbH	Austria	kurt@ess.co.at	K Fedra	TNO
52	<u>IEUBK</u>	Environmental Protection Agency	USA	white.paul@epamail.epa.gov , hogan.karen@epa.gov	P White	
53	<u>MLRM</u>	Agency for toxic substances and disease registry	USA	Mlewin@cdc.gov	M Lewin	
54	<u>AMDTreat</u>	U.S. Office of Surface Mining Reclamation and Enforcement	USA	rmckenz@osmre.gov	R McKenzie	
55	<u>ARAMS</u>	The United States Army Corps of Engineers	USA	Mark.S.Dortch@erdc.usace.army.mil	M Dortch	Brooke Magnanti
56	<u>Biobalance</u>	GSI Environmental Inc	USA	rkamath@gsi-net.com	R Kamath	
57	<u>BIOCHLOR</u>	Environmental Protection	USA	kraemer.stephen@epa.gov , west.daniel@epa.gov	D West	

		Agency				
58	<u>BIOPLUME III</u>	Environmental Protection Agency	USA	west.daniel@epa.gov	D West	
59	<u>BIOSCREEN</u>	Environmental Protection Agency	USA	west.daniel@epa.gov	D West	
60	<u>Calendex</u>	Exponent Inc.	USA	jberman@exponent.com	J Berman	
61	<u>CAMEO</u>	EPA and NOAA	USA	campbell@dem.state.ri.us (?), userrmp.usersupport@csc.com	T Campbell (??)	
62	<u>ConsExpo</u>	RIVM	NL	ConsExpo@rivm.nl , Peter.van.den.Hazel@hvdgm.nl	Peter van den Hazel	Peter van den Hazel
63	<u>DST on manure management</u>	LEAD	I	pierre.gerber@fao.org	P Gerber	
64	<u>E-FAST</u>	Environmental Protection Agency	USA	flessner.conrad@epa.gov	C. Flessner	
65	<u>FIELDS</u>	Environmental Protection Agency	USA	cooper.brian@epa.gov	B Cooper	
66	<u>FSPLUS</u>	Environmental Protection Agency	USA	cooper.brian@epa.gov	B Cooper	
67	<u>GeoSEM</u>	Syracuse Research Corp	USA	stephenson@syrres.com , thayer@syrres.com	Mr Stephenson	Urinda Alamo Hernandez (ualamo@correo.insp.mx)
68	<u>HSSM</u>	Environmental Protection Agency	USA	west.daniel@epa.gov	D West	
69	<u>J&E Model</u>	Environmental Protection Agency	USA	dinan.janine@epa.gov	J Dinan	
70	<u>MAROS</u>	GSI Environmental Inc.	USA	mv@gsi-net.com	M Vanderford	
71	<u>MCCEM</u>	Environmental Protection Agency	USA	cinalli.christina@epa.gov	C Cinalli	
72	<u>NAS</u>	Virginia Tech	USA	mwiddows@vt.edu	M Widdowson	

73	<u>On Site</u>	Environmental Protection Agency	USA	weaver.jim@epa.gov	J Weaver	
74	<u>R.A.T.</u>	Environmental Protection Agency	USA	cooper.brian@epa.gov	B Cooper	
75	<u>RESRAD</u>	RESRAD Family of Codes	USA	cyu@anl.gov, resrad@anl.gov	C Yu	
76	<u>SADA</u>	University of Tennessee, The Institute for Environmental Modelling	USA	gross@tiem.utk.edu	<u>Dr Gross (Horacio and Urinda as backup)</u>	Urinda (ualamo@correo.insp.mx)
77	<u>SourceDK</u>	GSI Environmental Inc	USA	skfarhat@gsi-net.com	S Farhat	
78	<u>VSP</u>	Pacific Northwest National laboratory	USA	vsp@pnl.gov , mdblm@bristol.ac.uk	<u>Bristol Univ (Brooke Magnanti)</u>	<u>Bristol Univ (Brooke Magnanti)</u>
79	TEE	ENEA and ASTRAN srl (Italy)	Italy	negrenti@enea.it, a.parenti@astran.it	E Negrenti	E Negrenti
80	TRANDI	ENEA	Italy	negrenti@enea.it	E Negrenti	E Negrenti
81	DALY	formatted info expected asap	Netherlands	janna.koppe@inter.nl.net	J.Koppe	J.Koppe
82	OECD Guideline 426	formatted info expected asap	Netherlands	janna.koppe@inter.nl.net	J.Koppe	J.Koppe
83	TTC	formatted info expected asap				
84	FNAQP (Finnish National AQ Portal)	FMI	Finland	virpi.tarvainen@fmi.fi	Virpi Tarvainen	Mia Pohjola
85	ESCAPE	FMI	Finland	juha.nikmo@fmi.fi	Juha Nikmo	Mia Pohjola
86	ACTION PLAN	Antwerp Univ	Belgium	hans.keune@ua.ac.be	Hans Keune	Hans Keune
87	QWASI	CEMC	Canada	ewebster@trentu.ca (?????)	Ruud Baartman at TNO	Ruud Baartman at TNO
88	Practical guide to involve stakeholders	Office for official	EC		Ruud Baartman at TNO	

	in the WFD process	publications of the European Communities				Ruud Baartman at TNO
89	GIS based DSS	University Ca Foscari Venice	Italy		Janna Koppe	
90	SYM PREVIUS	Adria Development	France	olivier.couvert@adria.fr	Olivier Couvert	Claudia Mosoiu
91	SIM E&H	Bucharest Polit. Univ.	Romania	vasiliu@hydrop.pib.ro	Daniela Vasiliu	Claudia Mosoiu
92	DEFINITE	Acacia Water B.V.	Netherlands	definite@ivm.vu.nl	R van Diepen	JRC (proposed by AB)
93	AIR-Q	Hans-Guido Mucke	Germany			FMI
94	CEHP	AAMMA	Argentina	veronicamonti@aamma.org	L Corra	L Corra
95	CAMX	NKUA	Greece			
96	AFU5	Ecobaby	NL	janna.koppe@inter.nl.net	Janna Koppe	Janna Koppe?
97	IUGR	Ecobaby	NL	janna.koppe@inter.nl.net	Janna Koppe	Janna Koppe?

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8. Annex 1: Short Summaries of DSTs based on Contact Forms

DST No.: 1

DST name: ISHTAR Suite

DST category: Software tool

DST Specific Cat.: integrated SW tool for designing and assessing urban environmental policies

Contact Person Title: Dr

Contact Person First Name: Emanuele

Contact Person Last Name: Negrenti

Organisation Short Name: ENEA

Organisation Full Name: Ente per le Nuove Tecnologie, l'Energia e l'Ambiente

Country: Italy

Address (Street, N, PO box, zip code): Via Anguillarese 301, 00123

City: Rome

Contact Person Email: negrenti@casaccia.enea.it

Contact Person Phone n.: +39 0630484112

WEB Link: www.ishtar-fp5-eu.com

SHORT DESCRIPTION

The ISHTAR Suite includes both commercial tools and tools purposely developed for the Suite. The modelling chain starts from the simulation of the citizens behavioural changes, in terms of movements, attributable to the measure under exam. The behavioural data (the so called 'Origin-Destination' matrix) are then used by the transport model for the traffic simulation. The vehicular flows parameters so produced are then used as input for the direct impact module, which simulates emissions of pollutants and noise and the accidents occurrence. The pollutants emissions, calculated link by link, are transformed in air concentrations by means of a dispersion model, while the noise emission levels are input to the noise propagation model that computes the noise level on the road and on the building's façade. These levels of pollution, noise and accidents risk constitute the basis for the exposure evaluation and for the health risk assessment. The pollution levels are also used for the assessment of the effects on monuments. A further tool is in charge for the gathering of all the relevant data produced by the previous tools and making the overall evaluation (through a Multicriteria Analysis and a Cost-Benefit Analysis).

DST No.: 2

DST name: OSCAR (Optimised Expert System for Conducting Environmental Assessment Urban Road Traffic)

DST category: Software

DST Specific Cat.: Integrated modelling system for environmental assessment of urban road traffic

Contact Person Title: Prof

Contact Person First Name: Ranjeet

Contact Person Last Name: Sokhi

Organisation Short Name: UH

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WEB link: <http://www.eu-oscar.org/>

SHORT DESCRIPTION

The OSCAR is a modelling system developed to assess air quality and emissions in and around streets. The system provides options for conducting assessments at different levels of complexity, determined by the nature of the problem, the availability of input data, and the output detail that is required. The OSCAR system incorporates a modular architecture that integrates a suite of models supported by a toolkit containing a meteorological pre-processor, an emissions module and a scenario analysis tool. It also has a visualisation capability that employs embedded routines or enables offline analysis of the output with GIS or other packages.

DST No.: 3

DST name: ICAROS NET (Integrated Computational Assessment of Air Quality via Remote Observations Network)

DST category: Software Platform

DST Specific Cat.: Air quality assessment and health effects

Contact Person Title: Dr.

R.P. First Name: Denis

R.P. Last Name: Sarigiannis

Organisation Short Name: JRC

Organisation Full Name: European Commission – Joint Research Centre

Country: Italy

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City: Ispra

Contact Person Email: dimosthenis.sarigiannis@ec.europa.eu

Contact Person Phone n.: +39 0332785294

WEB link: <http://icaros-net.jrc.ec.eu.int>

SHORT DESCRIPTION

ICAROS NET is a data fusion platform for integrating air quality monitoring data from the ground, satellite-borne sensors and numerical modelling results to provide an improved spatial mapping of particulate air pollution close to the ground. High precision and high spatial resolution maps are subsequently fused with population density and activity pattern data to estimate improved exposure patterns to particulate matter. The exposure estimates are fed into exposure-response functions, which result in maps of health risk expressed in terms of both morbidity and mortality indicators associated epidemiologically with particulate air pollution. The software is modular and permits to operate different atmospheric models (at the user's choice) as long as their output is compatible with the input format to the ICAROS NET geo-database. The use of satellite images taken in the visible, allows back casting, i.e. producing a time history of the spatial representation of PM pollution and the related health risk. Remote sensing data from different satellite platforms can be processed at varying levels of spatial and temporal resolution, making thus the computational platform a flexible tool for linking air pollution to spatial analysis of health effects. The high spatial resolution of the analysis helps increase the accuracy of spatial epidemiology and identify "hot spots" of pollution, which may be directly (visually or with unsupervised classification) linked to specific sources. This functionality allows improving the spatial components of the emissions inventories used in atmospheric pollution modelling. Finally, ICAROS NET has a dedicated module allowing multi-objective optimization of air quality monitoring networks with a view to increasing public health protection while respecting EU guidelines and financial constraints.

DST No.: 4

DST name: AirQUIS

DST category: Software Model

Contact Person Title: Senior Scientist

Contact Person First Name: Rune

Contact Person Last Name: Ødegård

Organisation Short Name: NILU

Organisation Full Name: Norwegian Institute for Air Research

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City: Kjeller

Contact Person Email: ruo@nilu.no

Contact Person Phone n.: +47 63898087

WEB link: www.airquis.com

SHORT DESCRIPTION

The AirQUIS system was developed by institutions dealing with air pollution, information technology and geographical information systems (GIS). The combination of on-line data collection, statistical evaluations and numerical modelling enable the user to obtain information, carry out forecasting and future planning of air quality. The system can be used for monitoring and to estimate environmental impacts from planned measures to reduce air pollution. The AirQUIS system contains the following modules: Geographical Information System (GIS), Automatic Data Acquisition System (ADACS), Measurement, Statistical and Graphical Presentation Tools, Emission Inventory, Emission Model, Wind Model, Dispersion Model, Exposure Model

Role of the Contact Person

DST Provider

DST No.: 5

DST name: STEDOM

DST category: Software Model

Contact Person Title: Ms

Contact Person First Name: Victoria

Contact Person Last Name: Aleksandropoulou

Organisation Short Name: TUC

Organisation Full Name: Technical University of Crete

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City: Kounoupidiana Akrotiriou, Chania

Contact Person Email: vic.aleksandropoulou@enveng.tuc.gr

Contact Person Phone n.: +30 2821037814

WEB link: N/A

SHORT DESCRIPTION

STEDOM is a decision support tool for air quality management in urban areas. It is a simple and user friendly tool for estimating the PM human exposure and dose taking into account the chemical characteristics of airborne particles. It is developed in a modular way, with independent modules for data input (pollution sources and emissions, map of the modelled area, meteorological, air pollution and terrain data, building characteristics and exposed population characteristics), for dispersion, micro environmental, exposure and dose modelling, health effects/risk estimates, and a statistical module all combined under a graphical user interface with GIS capabilities (Map Objects by ESRI).

Role of the Contact Person

DST Provider

DST No.: 6

DST name: HYSPLIT

DST category: Software Model

Contact Person Title: Mr.

Contact Person First Name: Roland

Contact Person Last Name: Draxler

Organisation Short Name: NOAA ARL

Organisation Full Name: National Oceanic and Atmospheric Administration

Air Resources Laboratory

Country: USA

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City: Silver Spring, Maryland 20910

Contact Person Email: Roland.draxler@noaa.gov

Contact Person Phone n.: +1-3017130295 x117

WEB link: <http://www.arl.noaa.gov/hysplit>

SHORT DESCRIPTION

The HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) model is the newest version of a complete system for computing simple air parcel trajectories to complex dispersion and deposition simulations. As a result of a joint effort between NOAA and Australia's Bureau of Meteorology, the model has recently been upgraded. New features include improved advection algorithms, updated stability and dispersion equations, a new graphical user interface, and the option to include modules for chemical transformations. Without the additional dispersion modules, Hysplit computes the advection of a single pollutant particle, or simply its trajectory. The dispersion of a pollutant is calculated by assuming either puff or particle dispersion. In the puff model, puffs expand until they exceed the size of the meteorological grid cell (either horizontally or vertically) and then split into several new puffs, each with its share of the pollutant mass. In the particle model, a fixed number of initial particles are advected about the model domain by the mean wind field and a turbulent component. The model's default configuration assumes a puff distribution in the horizontal and particle dispersion in the vertical direction. In this way, the greater accuracy of the vertical dispersion parameterization of the particle model is combined with the advantage of having an ever expanding number of particles represent the pollutant distribution. The model can be run interactively on the Web through the READY system on our site or the code executable and meteorological data can be downloaded to a Windows PC. The Web version has been configured with some limitations to avoid computational saturation of our web server. The registered PC version is complete with no computational restrictions, except that user's must obtain their own meteorological data files. The unregistered version is identical to the registered version except that it will not work with forecast meteorology data files.

Role of the Contact Person

DST Provider

DST No.: 7

DST name: RODOS

DST category: Decision support system for off-site emergency management following a nuclear or radiological emergency

Contact Person Title: Mr.

Contact Person First Name: Wolfgang

Contact Person Last Name: Raskob

Organisation Short Name: FZK

Organisation Full Name: Forschungszentrum Karlsruhe GmbH

Country: Germany

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City: 76344 Eggenstein-Leopoldshafen

Contact Person Email: wolfgang.raskob@iket.fzk.de

Contact Person Phone n.: +49 7247822480

WEB link: www.rodos.fzk.de

SHORT DESCRIPTION

Under the auspices of its Euratom Research Framework Programmes, the European Commission (EC) has supported the development of the RODOS (Real-time On-line DecisiOn Support) system for off-site emergency management after nuclear accidents. The current version of the system has been, or is being, installed in many national emergency centres. RODOS provides coherent support at all stages of an accident (i.e., before, during and after a release), including the long term management and restoration of contaminated areas. The system is able to support decisions about the introduction of a wide range of potentially useful countermeasures (e.g., sheltering and evacuation of people, distribution of iodine tablets, food restrictions, agricultural countermeasures, relocation, decontamination, restoration, etc.) mitigating the consequences of an accident with respect to health, the environment, and the economy. Within the EURANOS project, the RODOS system will be further enhanced for practical applicability in operational emergency centres.

Role of the Contact Person

Coordinator of the RODOS related activities and coordinator of the EURANOS (www.euranos.fzk.de) project

DST No.: 8

DST name: Health Impact Assessment (HIA)

DST category: Handbook, Guideline

Contact Person Title: <Only email address available>

Contact Person First Name: <Only email address available>

Contact Person Last Name: <Only email address available>

Organisation Short Name: WHO

Organisation Full Name: World Health Organization

Country: Switzerland

Address (Street, N, PO box, zip code): Avenue Appia 20

City: CH - 1211 Geneva 27

Contact Person Email: EBDassessment@who.int.

Contact Person Phone n.: +41 227912111

WEB link: <http://www.who.int/hia/en/>

SHORT DESCRIPTION

HIA is a practical approach used to judge the potential health effects of a policy, program or project on a population, particularly on vulnerable or disadvantaged groups. Recommendations are produced for decision makers and stakeholders, with the aim of maximising the proposals positive health effects and minimising the negative health effects. The approach is not limited to environmental aspect of health impact. The site contains several pages with tools: Short guides and a collection of toolkits, guides, reports, journal articles, background reports and presentations that review HIA.

DST No.: 9

DST name: Traffic Decision Support System (TDSS)

DST category: N/A

Contact Person Title: N/A

Contact Person First Name: P.

Contact Person Last Name: Domburg

Organisation Short Name: ECN

Organisation Full Name: Energy research Centre of the Netherlands (ECN)

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Contact Person Phone n.: +31 224564949

WEB link: <http://www.ecn.nl/docs/library/report/2004/c04002.pdf>

SHORT DESCRIPTION

The system has been developed jointly by ECN, GG&GD Amsterdam (Municipal Health Service Amsterdam) and IVV (the Department of infrastructure, traffic and transport of the city of Amsterdam). TDSS is an instrument to assist local councils in the choice of cleaner techniques for transport by bus. It enables evaluation of the environmental (air quality), epidemiological (public health) and financial (investments in technology versus savings related to improved health) impacts of a specified scenario in comparison with the current situation.

Role of the Contact Person

DST Provider

DST No.: 10

DST name: SKIRON, CAMx

DST category: N/A

Contact Person Title: Prof.

Contact Person First Name: George

Contact Person Last Name: Kallos

Organisation Short Name: NKUA

Organisation Full Name: University of Athens

Country: Greece

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City: Athens

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Contact Person Phone n.: +30 2107276835

WEB link: <http://forecast.uoa.gr>

SHORT DESCRIPTION

The SKIRON system is a weather and desert dust forecasting tool running on daily base and having the predictions available from the web <http://forecast.uoa.gr>. The 3-D meteorological and turbulence fields are used to drive CAMx, the photochemical model. The forecasted fields are available to a number of other Institutes and Agencies from various countries for a number of applications like wave prediction, 3-D ocean circulation, wind energy etc. The resolution used is approximately 5 km and the forecasting horizon is 3-5 days according to the products.

DST No.: 11

DST name: Bioassay-directed monitoring strategy

DST category: N/A

Contact Person Title: Dr.

Contact Person First Name: Ron

Contact Person Last Name: van der Oost

Organisation Short Name: Waternet

Organisation Legal Name: Waternet, Research and Engineering, Toxicology Division

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1096 AC Amsterdam

City: Amsterdam

Country: The Netherlands

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Contact Person Phone n.: +31 889394000

WEB link: http://www.waternet.nl/algemene_onderdelen/contact

SHORT DESCRIPTION

Waternet uses 4 bioassays and software to control these bioassays. At certain thresholds levels of changes in the outcome of the bioassays the water pipelines are closed down.

DST No.: 12

DST name: Marine antifouling model to predict environmental concentrations (MAMPEC)

DST category: Software Model

Contact Person Title: Dr.

Contact Person First Name: Bert

Contact Person Last Name: van Hattum

Organisation Short Name: IVM

Organisation Legal Name: Institute voor Milieuvraagstukken

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City: Amsterdam

Country: The Netherlands

Contact Person Email: bert.van.hattum@ivm.falw.vu.nl

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WEB link or other reference of the DST:

<http://www.wldelft.nl/rnd/intro/topic/mampec/index.html>

SHORT DESCRIPTION

Funded partly by R&D funds, the Institute of Environmental Studies/IVM and Delft Hydraulics have conducted a study for the European Paint Makers Association (CEPE) in which a generic risk assessment / chemical fate model for antifouling products has been developed. Current risk-assessment models usually include only a limited number of emissions, transport and chemical fate pathways required for a reliable assessment of the fate of antifouling products (Fig. 1). Review of existing models revealed that most, if not all, were deficient in their treatment of parameters specific to marine antifouling paints, such as leaching rates of biocides, shipping related factors, effects of temperature, salinity, pH dependent processes (biodegradation, speciation, sorption) and hydrodynamic characteristics of typical marine environments. Only sophisticated chemical equilibrium models are capable of a comprehensive treatment of the subtle physico-chemical and their biological processes and interactions. For an environmental risk assessment it is important that these processes and interaction-effects can be embedded in a model. A new user-friendly computer model was developed specifically for antifouling agents. The model provides a state-of-the-art prediction of environmental concentrations of antifouling products in five generalised 'typical' marine environments. The user can specify different dimensions and environmental properties. Depending on these parameters different standard hydraulic scenarios can be generated. The model takes into account emission factors (e.g., leaching rates, shipping intensities, residence times, underwater hull surface areas), compound-related properties and processes (e.g. volatilisation, speciation, hydrolysis, photolysis, bacterial degradation), and properties and processes related to the specific environment (e.g., currents, tides, salinity, DOC, suspended matter load).

The prototype of the model consists of an accessible user interface (UI) from which data are entered (properties of environments, compounds and emissions), maintained (database), calculation modules are called upon (hydrodynamics, chemical fate), and results are presented and maintained.

DST No.: 13

DST name: EUSES

DST category: Software Model

Contact Person Title: N/A

Contact Person First Name: Ana

Contact Person Last Name: Paya-Perez

Organisation short Name: ECB-JRC

Organisation Full Name: European Chemical Bureau, Joint Research Centre

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WEB link: <http://ecb.jrc.it/euses/>

SHORT DESCRIPTION

EUSES is a decision-support instrument, which enables government authorities, research institutes and chemical companies to carry out rapid and efficient assessments of the general risks posed by substances to man and the environment. EUSES is intended mainly for initial and refined risk assessments rather than comprehensive assessments. A second version of the program is in development, which covers, in addition to new and existing chemicals, also the assessment of pesticides and biocides. It is recommended that experts in risk assessment of substances feel responsible for the evaluation and selection of data and the application of the system. The database IUCLID serves as the data source for the calculations to be carried out with EUSES. Adequate interpretation of the results is required as a basis for risk management decisions.

Role of the Contact Person

DST Provider

DST No.: 14

DST name: EPIC-SOFT

DST category: Software tool

DST Spec. Cat.: European Prospective Investigation into Cancer and Nutrition (EPIC)

Contact Person Title: Drd.

Contact Person First Name: Claudia

Contact Person Last Name: Mosoiu

Organisation Short Name: IBA

Organisation Full Name: Institute of Food Bioresources

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WEB link: www.iarc.fr/epic/menu.html

SHORT DESCRIPTION

EPIC was designed to investigate the relationships between diet, nutritional status, lifestyle and environmental factors and the incidence of cancer and other chronic diseases. EPIC-SOFT provides extremely detailed information on usual diet in individual countries. The results of extensive statistical analyses on food consumption patterns show very different dietary patterns between countries. There are three dietary methods, a self-completed dietary questionnaire (FFQ, where the participants estimate their average frequency of intake of a list of food over the previous 12 months) combined with a seven-day record (diary) and some additional centre-specific questions which reflect particular interests on individual scientists. This program was adapted in order to calibrate, or adjust the questionnaire measurements from each questionnaire. The program enables the research interviewer to pursue a standardized interview to determine precisely what the participant had consumed in the previous 24 hours (24 hour diet recall). The method: The analysis of variance used a random effects model in which mean energy intake per interviewer is used as the dependent variable, while age, body mass index (BMI), energy requirement, week day, season, special diet, special day, physical activity and the EPIC-SOFT version is used as independent variables.

DST No.: 15

DST name: Framework for Decision Making in the Field of Environment and Health (Beoordelingskader Gezondheid en Milieu)

DST category: Indicator

Contact Person Title: N/A

Contact Person First Name: Mark

Contact Person Last Name: Van Bruggen

Organisation Short Name: RIVM

Organisation Full Name: RIVM

Country: Netherlands

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Contact Person Phone n.: +31 302749111

WEB link: <http://www.rivm.nl/bibliotheek/rapporten/609026003.html> (in Dutch)

SHORT DESCRIPTION

The framework for decision-making in health and the environment was first published in the Action Programme for Health and Environment (2002), a joint initiative of the Dutch Ministries of Housing, Spatial Planning and the Environment (VROM) and of Housing, Public Health and Sport (VWS). It delivers a standardized overview with important arguments for the decision maker. The framework enables the competent authority to judge, better than before, the desirability, the nature and scope of interventions, or the setting of priority. The most important results of the framework are:

1. Size of the health effects
2. Seriousness of the health effects
3. Valuation of the effects or risks
4. Intervention options
5. Costs and benefits
- 6.

Role of the Contact Person

DST Provider

DST No.: 16

DST name: Preconception counselling

DST category: Guideline

Contact Person Title: Prof. Dr.

R.P. First Name: Janna

R.P. Surname: Koppe

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WEB link: www.ecobaby.nl

SHORT DESCRIPTION

Recommendations for man and woman that want to have a baby, must they be advised to go to a not air polluted place? Before conception? See review of Radim Sram in EHP.

DST No.: 17

DST name: URBIS

DST category: Software Model

Contact Person Title: N/A

Contact Person First Name: Jeroen

Contact Person Last Name: Borst

Organisation Short Name: TNO

Organisation Full Name: Netherlands Organisation for Applied Scientific Research

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Contact Person Phone n.: +31 152696900

WEB link:

http://www.tno.nl/content.cfm?context=markten&content=product&laag1=186&laag2=267&item_id=745

SHORT DESCRIPTION

Urbis is a software tool for Local Environmental Surveys. Expertise on emissions, dispersion/transmission, annoyance en health-risks, is brought together in Urbis. With this GIS based instrument, the user can survey relatively fast and inexpensively the local environment of a municipality or district with a high level of detail. Noise, air pollution by various substances, odour en safety hazards are taken into account. The basis of the survey is information available at the municipality or other information providers. The present situation, as well as future scenarios can be examined and compared.

Role of the Contact Person

DST Provider

DST No.: 18

DST name: UDM-FMI, CAR-FMI and EXPAND

DST category: Software Model

DST specific cat.: A SOFTWARE KIT FOR DESIGNING AND ASSESSING URBAN ENVIRONMENTAL POLICIES

Contact Person Title: M. Sc. (Tech.)

Contact Person First Name: Mervi

Contact Person Last Name: Haakana

Organisation short name: FMI

Organisation full name: Finnish Meteorological Institute

Country: Finland

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Contact Person Phone n.: +35 8 (0)505421237

WEB link

SHORT DESCRIPTION

For the assessments of air pollutant (NO₂, NO, O₃, PM_{2.5}, CO, and SO₂) concentrations in urban areas, a more extensive modelling system has been developed for evaluating traffic flows, emissions from stationary and vehicular sources, and atmospheric dispersion of pollution in an urban area. The dispersion modelling is based on combined application of the Urban Dispersion Modelling system (UDM-FMI) and the road network dispersion model (CAR-FMI), developed at FMI. The modelling system has been extended to contain a mathematical model for determination of human exposure to ambient air pollution in an urban area (EXPAND). The main objective was to evaluate population exposure levels and distribution instead of personal exposures for specific individuals. The modelling system is an important regulatory assessment tool for environmental authorities, e.g. it has been applied in an environmental impact assessment of the transportation system scenarios in the Helsinki Metropolitan Area. It has also been applied in numerous air quality assessments, which have been conducted nationally in numerous cities.

DST No.: 19

DST name: Practical guidance for assessment of disease burden at national and local levels

DST category: Methodology, Guideline

Contact Person Title:: <Only email address available>

Contact Person First Name: <Only email address available>

Contact Person Last Name: <Only email address available>

Organisation short name: WHO

Organisation full name: World Health Organization

Country: Switzerland

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Contact Person Email: EBDassessment@who.int.

Contact Person Phone n.: +41 227912111

WEB link: http://www.who.int/quantifying_ehimpacts/national/en/index.html

SHORT DESCRIPTION

WHO has coordinated the preparation of practical guidance for the estimation of disease burden at national or local levels for selected environmental and occupational risk factors. This guidance is compiled in the "Environmental Burden of Disease Series" and contains the scientific basis for the estimates, as well as a step-by-step approach and a numerical example to assist scientists in the estimation of the size of an environmental health problem in a selected area. Such a quantified estimate of an environmental impact on a population should be an input to decision-making for setting policies or defining protective measures, and serve for public information. Spreadsheets containing the various calculation steps presented in the guidance document are available for selected risk factors (Lead, indoor air, outdoor air, sharps injuries in health-care workers).

Role of the Contact Person

DST Provider

DST No.: 20

DST name: ENvironment and Health Information System (ENHIS)

DST category: Software Model

Contact Person Title: N/A

Contact Person First Name: Michal

Contact Person Last Name: Krzyzanowski

Organisation Short Name: WHO

Organisation Full Name: WHO European Centre for Environment and Health

Country: Germany

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Contact Person Phone n.: +49 2288150405

WEB link: <http://www.enhis.org>

SHORT DESCRIPTION

In the ENHIS-2 project a comprehensive information and knowledge system is developed that will help to identify and prioritize wide-spread environmental health problems in the Member States, enable monitoring the effects of actions taken, and contribute to building advocacy and communication strategies. Specifically, the information system is being designed to enable:

- Monitoring of the environment and health situation and trends in the countries in the European region and evaluation of the effectiveness of policies;
- Comparisons between countries on the basis of targets set in European-wide action programmes;
- Regular reporting on environment and health to support decision makers and also to provide information to professionals and the general public;
- Exchange of information, data and knowledge as well as good practice examples in the field of public health and the environment.

Role of the Contact Person

DST Provider

DST No.: 21

DST name: City and Environment Health Impact Assessment (Gezondheids Effect Screening)

DST category: Methodology, Indicator

Contact Person Title: N/A

Contact Person First Name: Peter

Contact Person Last Name: Van den Hazel

Organisation Short Name: Bureau Medische Milieukunde Jans, van den Hazel & van de Weerd

Organisation Full Name: Bureau Medische Milieukunde Jans, van den Hazel & van de Weerd

Country: Netherlands

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City: 6802 EJ Arnhem

Contact Person Email: Peter.van.den.Hazel@hvdgm.nl

Contact Person Phone n.: +31 263773915

WEB link:

<http://www.vrom.nl/get.asp?file=docs/publicaties/w309.pdf&dn=w309&b=vrom>

SHORT DESCRIPTION

The City and Environment Health Impact Assessment (HIA) is a tool that provides advance insight into the various factors that can affect the health of a city's residents. An HIA provides a clear picture of health-related problems and opportunities with regard to urban development projects, changes in spatial planning or infrastructure, and national restructuring projects. The public health and environment ministries commissioned the development of the HIA for municipal health services. The HIA method was devised in 2000. In 2006 the third update was introduced, incorporating the latest insights in the field. The City and Environment HIA assesses the public health effects of exposure to air pollution, noise, odour and electromagnetic fields, and external safety risks. All relevant sources such as businesses, roads, railways, shipping, aircraft and overhead power lines are taken into account. In addition, the health impact of soil pollution is assessed. On the basis of dose-response relationships the exposure for each environmental factor is expressed in an environmental health quality value and an HIA score. These vary from 'very good' (HIA score 0) to 'very unsatisfactory' (HIA score 8).

Role of the Contact Person

DST Provider

DST No.: 22

DST name: INTARESE (Integrated Assessment of Health Risks of Environmental Stressors in Europe)

DST category: Methodology

Contact Person Title: Mr

Contact Person First Name: James

Contact Person Last Name: Grellier

Organisation Short Name: Imperial College

Organisation Legal Name: Imperial College London

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Role of the Contact Person: DST User

SHORT DESCRIPTION

This project is designed to support implementation of the European Environment and Health Action Plan, by providing the methods and tools that are essential to enable integrated assessment of environment and health risks. In close collaboration with users, it will develop a methodological framework and a set of tools and indicators for integrated assessment that can be applied across different environmental stressors, exposure pathways and policy areas. It will review, bring together and enhance the monitoring systems needed to support such analyses, including routine environmental monitoring, biomonitoring and health surveillance. The framework, tools and data will be tested and demonstrated through integrated assessments of exposures and health risks in a number of specific policy areas, including transport, housing, agriculture, water, wastes, household chemicals and climate. Results from these will be used both to refine the assessment methods and to provide specific information on health implications of current and potential future, policies. Based on the results, a toolbox for integrated environment and health risk assessment will be developed. Deliverables will include new, integrated methods and indicators for environment and health risk assessment and monitoring, an operational assessment toolbox, and a set of validated assessments that can directly inform policy.

WEB LINK or other reference of the DST

<http://www.intarese.org/>

DST No.: 23

DST name: EROD Assay

DST category: N/A

Contact Person Title:: Prof. Dr.

Contact Person First Name: Karl-Werner

Contact Person Last Name: Schramm

Organisation Short Name: GSF

Organisation Legal Name: Research Centre for Environment and Health

WEB link to Organisation: www.gsf.de

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SHORT DESCRIPTION

Determination of Dioxin-like PBT among PBT in environmental and biological samples (food and feed)

WEB LINK or other reference of the DST

<http://hometown.aol.de/kwsschramm/Kwsschramm.html>

DST No.: 24

DST name: SuSAP (Supply Sustainable Agriculture Production)

DST category: Software Model

Contact Person Title: Dr.

Contact Person First Name: Carlo

Contact Person Last Name: Riparbelli

Organisation Short Name: ERSAF

Organisation Legal Name: Ente Regionale per i Servizi all'Agricoltura e alle Foreste della Lombardia

WEB link to Organisation: www.ersaf.lombardia.it

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Contact Person Phone n.: +39 0267404664

SHORT DESCRIPTION

SuSAP is software, integrating existing database (soil, climate, crop, pesticides) and the mathematical model PELMO 3.0 (PEsticide Leaching MOdel - Klein et al, 1995) to assess the environmental risk of pesticides at three different levels as follows:

- Regional and catchments level - scale 1:250,000 and 1:50,000 - to produce soil vulnerability maps to pesticide leaching, integrating PELMO model in a GIS environment;
- Farm level - scale 1:10,000 - to define the best crop protection strategies on the basis of the pesticides impact on the environment. This scale of application called SuSAP Network is web based software which integrates existing environmental data from different sources, an innovative web service for managing model simulations (Web Environmental Model Simulation Service – WEMSS) and a WebGis which displays geographic data.

WEB LINK or other reference of the DST

www.ersaf.lombardia.it

DST No.: 25

DST name: Platform for Exposure Assessment

DST category: Web system including software model, source library and databases

Contact Person Title: Dr.

Contact Person First Name: Arja

Contact Person Last Name: Asikainen

Organisation Short Name: KTL

Organisation Legal Name: National Public Health Institute

WEB link to Organisation: <http://www.ktl.fi/portal/english>

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Country: Finland

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SHORT DESCRIPTION

This web-based system integrates databases, modelling tools, and information sources needed for exposure assessment performed for the purposes of health effect and risk assessments. Platform includes chemical database providing chemical specific exposure related information, actual exposure calculation tool with the outputs of media concentration, exposure, intake and intake fraction, and information library linking other available databases, exposure modelling tools and relevant guidance documents.

WEB LINK or other reference of the DST

<http://www.ktl.fi/expoplatform>

DST No.: 26

DST name: WATSON ('integrated WATER and SOil environmental fate, exposure and impact assessment model of Noxious substances')

DST category: Software Model

Contact Person Title:

Contact Person First Name: Peter

Contact Person Last Name: Fantke

Organisation Short Name: IER

Organisation Legal Name: Institute of Energy Economics and the Rational Use of Energy

WEB link to Organisation: <http://www.ier.uni-stuttgart.de/>

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Country: Germany

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SHORT DESCRIPTION

The multimedia modelling framework WATSON performs environmental fate and exposure assessment including impact assessment and monetary valuation in a bottom-up analysis based on the impact pathway approach (IPA). It facilitates the coverage of exposures towards hazardous substances through ingestion of food items and drinking water in a spatially-resolved pan-European setting based on an environmental fate model for the media soil and water. The contaminants' environmental fate is described with the help of a spatially-resolved climatological box model similar to Mackay level III/IV models. The subsequent environmental fate model is spatially explicit according to information for about 3 400 catchments. It assumes long-term average conditions in order to describe the environment. The estimation of ingestion-related exposures builds on the guidance documents for a site-specific risk assessment approach recommended by the US-EPA for hazardous waste combustion facilities.

WEB LINK or other reference of the DST

<http://watson.ier.uni-stuttgart.de>

DST No.: 27

DST name: SVOD (System for Visualization of Oncology Data)

DST category: Software Model

Contact Person Title: Dr.

Contact Person First Name: Ladislav

Contact Person Last Name: Dusek

Organisation Short Name: IBA

Organisation Legal Name: Institute of Biostatistics and Analyses

WEB link to Organisation: <http://www.iba.muni.cz>

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Country: Czech Republic

Contact Person Email: dusek@iba.muni.cz

Contact Person Phone n.: +420 549493826

SHORT DESCRIPTION

A web portal providing access to more than 1.3 millions of records from the Czech National Cancer Registry. The portal is primarily focused on epidemiological data and thus on the analysis of trends, regional differences and population risks. Users can find here a set of interactive tools and automatic reports, allowing a simple orientation within the database and output views according to personal preferences, even for non qualified users. The portal enables also analyses of demographic data of the Czech population (access provided in cooperation with the Czech Statistical Office) and important databases concerning the environmental conditions. This system has also successfully been implemented in Slovakia, using data of the Slovak National Cancer Registry.

WEB LINK or other reference of the DST

<http://www.svod.cz/?sec=aktuality&lang=en>

DST No.: 28

DST name: RAINS_Italy

DST category: Software Model

Contact Person Title: Mr.

Contact Person First Name: Tiziano

Contact Person Last Name: Pignatelli

Organisation Short Name: ENEA

Organisation Legal Name: Ente per le Nuove Tecnologie, l'Energia e l'Ambiente

WEB link to Organisation: www.enea.it

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Country: Italy

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Contact Person Phone n.: +39 0630486766

SHORT DESCRIPTION

The Integrated Assessment Model RAINS_Italy mirrors, at national level, the features of the continental Model RAINS_Europe, from which it is derived. Starting from activity levels data sets, concerning energy consumptions, industrial production, Transport activities, agriculture, livestock etc. RAINS_Italy develops emission scenarios, cost curves, concentration/deposition maps for SO_x, NO_x, NH₃, PM, VOC and health impact from ozone and PM 2, 5. The new version (GAINS) has been extended to the Greenhouse Gases (GHGs), especially CO₂ and Methane, allowing the identification of synergies and tradeoffs between Air Pollution and Climate Change. The ultimate objective is to provide the policy makers with the most cost effective options to reduce the Air Pollution and therefore the effects on the environment and human health. The RAINS/GAINS methodology is widely used by both the EU Commission and in the frame of the UN-ECE Convention on Long Range Transboundary Air Pollution (CLRTAP) where the Integrated Approach has been developed.

WEB LINK or other reference of the DST

http://www.minni.org/rains/english_version.htm, www.iiasa.ac.at

DST No.: 29

DST name: Exposure

DST category: Methodology

Contact Person Title: Dr.

Contact Person First Name: Arnaud

Contact Person Last Name: Banos

Organisation Short Name: Image et Ville, CNRS

Organisation Legal Name: Centre national de la Recherche Scientifique

WEB link to Organisation: <http://imaville.u-strasbg.fr/>

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Country: France

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SHORT DESCRIPTION

Exposure of populations to urban risks is more and more explored in its spatial dimension, as populations and risks are both spatially anchored. Spatio-temporal surveys and spatial simulation models can then be designed and applied, in order to assess spatio-temporal exposure of populations to various risks. GIS and agent based models are very powerful means of investigating these issues. Examples include HEARTS (Health Effects and Risks of Transport Systems, 5th Framework) and SAMU (http://web.univ-pau.fr/~banos/samu_english.html).

WEB LINK or other reference of the DST

<http://www.univ-pau.fr/~banos/>

DST No.: 30

DST name: Joaquín de Lapuente

DST category: Ecotoxicology

Contact Person Title: Mr.

Contact Person First Name: Joaquín

Contact Person Last Name: De Lapuente

Organisation Short Name: PCB

Organisation Legal Name: Barcelona Science Park

WEB link to Organisation: www.pcb.ub.es

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Country: Spain

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SHORT DESCRIPTION

We are working in ecosurveillance as an indicator of human risk assessment

WEB LINK or other reference of the DST

DST No.: 31

DST name: WATERSHEDSS (WATER, Soil, and Hydro- Environmental Decision Support System)

DST category: Indicator

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: N/A

Organisation Legal Name: NC SU Water Quality Group

WEB link to Organisation: N/A

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City: Raleigh

Country: USA

Contact Person Email: N/A

Contact Person Phone n.: N/A

SHORT DESCRIPTION

To adequately control nonpoint source pollution of a water resource, water quality managers must focus on minimizing the impacts of individual nonpoint source pollutants. The strategic choice and placement of best management practices (BMPs) in the watershed can successfully reduce the input of individual pollutants and may improve water quality. WATERSHEDSS was designed to help watershed managers and land treatment personnel identify their water quality problems and select appropriate best management practices.

WATERSHEDSS is comprised of three components:

- The watershed assessment and evaluation which includes a pollutant budget spreadsheet and an agricultural best management practice (BMP) database
- An educational component, containing detailed information and references on Nonpoint Source (NPS) pollutants and sources.
- An annotated bibliography of NPS literature

The two primary objectives of WATERSHEDSS are to:

- transfer water quality and land treatment information to watershed managers in order to assist them in making appropriate land management and land treatment decisions to achieve water quality goals
- assess and evaluate sources, impacts, and potential management options for control of nonpoint source pollution in a watershed based on user-supplied information and decisions

WEB LINK or other reference of the DST

<http://www.water.ncsu.edu/watershedss/>

DST No.: 32

DST name: CLARINET (Contaminated LAnd Rehabilitation Network for Environmental Technologies)

DST category: Software Model

Contact Person Title: Dr.

Contact Person First Name: Paul

Contact Person Last Name: Bardos

Organisation Short Name: N/A

Organisation Legal Name: R3 Environmental Technologies Limited

WEB link to Organisation: N/A

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City: Ware

Country: UK

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Contact Person Phone n.: N/A

SHORT DESCRIPTION

CLARINET provides an interdisciplinary network on the sustainable management of contaminated land in Europe, analysed key-issues in decision-making processes and identified priority research needs on technical, environmental and socio-economic topics. The network brings together the combined knowledge and expertise of academics, national policy makers, government experts, consultants, industrial land owners and technology developers from 16 European countries. The key objective of CLARINET was to identify the means for the effective and sustainable management of contaminated land in order to ensure the safe (re-) use of these lands, abate caused water pollution, and maintain the functionality of soil and (ground-) water ecosystems

WEB LINK or other reference of the DST

www.clarinet.at, www.umweltbundesamt.at/en/

DST No.: 33

DST name: EUPHIDS (EUropean Pesticide Hazard Information and Decision-support System)

DST category: Handbook

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: N/A

Organisation Legal Name: National Institute of Public Health and the Environment

WEB link to Organisation: www.pcb.ub.es

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City: Bilthoven

Country: Netherlands

Contact Person Email: N/A

Contact Person Phone n.: + 31 302743350

SHORT DESCRIPTION

EUPHIDS is the result of a research project carried out during 1993-1995 with the support of the Environment Research Programme (1990-1994) of the European Union. The system is meant to become an aid in the process of registering a plant-protection product (pesticide) in the European Union, including its Member States and their respective regions. The system is meant to fill the gap between the general criteria, set by the Uniform Principles which define the relevant targets and the general procedures of assessment, and the need for detailed methods and procedures for the quantitative risk assessment of each relevant target. EUPHIDS provides these methods, taking into account the specific environmental characteristics of areas. The risks to humans and the environment, expressed as ratio of exposure to (no) effect levels, are presented in maps. The structure of the system and the implementation of the main modules (leaching, run-off, spray-drift, and exposure of operators during application and exposure of the general population through diet) are complete, and at the moment several submodules are being developed. The system is, therefore, not fully operational. Data provided by the system describe study areas as well as toxicological and ecotoxicological characteristics of eight pesticides.

WEB LINK or other reference of the DST

http://www.mnp.nl/en/publications/1996/EUPHIDS__a_decision-support_system_for_the_admission_of_pesticides.html

DST No.: 34

DST name: Environmental Information Management and Decision Support System

DST category: Implementation Handbook

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: TRB

Organisation Legal Name: Transportation Research Board

WEB link to Organisation: www.trb.org

Address (Street, N, PO box, zip code): Business Office, 500 Fifth Street, NW

City: Washington, DC 20001

Country: USA

Contact Person Email: N/A

Contact Person Phone n.: N/A

SHORT DESCRIPTION

This report contains the results of the research into an environmental information management and decision support system (EIM&DSS) that can be applied to multimodal transportation planning, programming, project development, operations, and maintenance. The report presents an eight-step process for initiating, developing, maintaining, and evolving a system of data and information management and decision support. The handbook demonstrates the feasibility and application of environmental information management and support throughout the major activities of a large and complex transportation agency.

WEB LINK or other reference of the DST

http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_481.pdf

DST No.: 35

DST name: TEAP

DST category: Software

Contact Person Title: Prof.

Contact Person First Name: Roberto

Contact Person Last Name: San Jose

Organisation Short Name: UPM

Organisation Legal Name: University of Madrid

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Contact Person Phone n.: N/A

SHORT DESCRIPTION

This tool is designed to be used by the environmental impact department at the industrial site. The tool provides a response to air quality impact to industrial emissions in the form of surface patterns and linear time series for specific geographical locations in the model domain. The model domain is designed in a way that the industrial source point is located approximately in its centre. The model domain can be as extended as described but a specific nesting architecture should be designed for each case together with balanced computer architecture. The TEAP tool (a EUREKA-EU project) has the capability to incorporate different modelling systems. In a preliminary stage we have tested the system with the so-called OPANA model. The latter is the Operational Atmospheric Numerical pollution model for urban and regional areas and was developed during the mid 1990s by the Environmental Software and Modelling Group at the Computer Science School of the Technical University of Madrid (UPM), based on the MEMO model developed in the University of Karlsruhe (Germany) in 1989 and updated on 1995, for non-hydrostatic three-dimensional mesoscale meteorological modelling and the SMVGEAR model for chemistry transformations based on the CBM-IV mechanism and the GEAR implicit numerical technique developed at University of Los Angeles (USA) in 1994.

WEB LINK or other reference of the DST

Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

DST No.: 36

DST name: AirGIS

DST category: Software

Contact Person Title: N/A

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Contact Person Last Name: Solvang Jensen

Organisation Short Name: NERI

Organisation Legal Name: National Environmental Research Institute

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SHORT DESCRIPTION

The system is based on the Danish operational street pollution model (OSPM), technical and cadastral digital maps and Danish national administrative databases on buildings, cadastres and populations. It applies a geographic information system (GIS). AirGIS estimates ambient air pollution levels at high temporal and spatial resolutions. The model system enables mapping of traffic emissions, air quality levels and human exposures at residence addresses, at workplace addresses and in streets. Mapping and scenario results can be compared with air quality limits. Impact assessment of traffic air pollution abatement measures can also be carried out.

WEB LINK or other reference of the DST

[Transportation Research Part D: Transport and Environment](#) Volume 6, Issue 4, July 2001, Pages 229-241

DST No.: 37

DST name: AREM

DST category: Software

Contact Person Title: N/A

Contact Person First Name: G.

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Organisation Short Name: N/A

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SHORT DESCRIPTION

The package AREM is a prototype of a decision support system oriented to air pollution monitoring network designers. Its aim is to support the choice of the number of receptors and their localization in the considered area. The designer can analyze different solutions giving constraints on the maximum number of stations, or on the minimum network efficiency, or on the single station efficiency. The criterion adopted in this package is to locate the instruments so as to evidence concentrations exceeding law standards; in particular, the actual EEC legislation takes into account the probability distributions of measured values and assigns restrictions on some critical percentiles.

WEB LINK or other reference of the DST

[Environmental Software](#), Volume 6, Issue 1, March 1991, Pages 55-60

DST No.: 38

DST name: SIMTRAP

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Klaus

Contact Person Last Name: Noekel

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Organisation Legal Name: N/A

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SHORT DESCRIPTION

The SIMTRAP system effectively integrates two previously existing simulation packages (DYNEMO and DYMOS) and adds a GIS toolkit with built-in functionality for decision support to facilitate user interaction and analysis of the results. SIMTRAP, like lends itself to ‘what-if’ scenario analyses. Prior to running a simulation the user selects the scenario to study in terms of the following parameters:

- weather situation (either one day from a database of historical data for the study area or a fictitious, extreme situation),
- changes to the emission inventory (households, industry, background),
- changes to traffic demand (both long-term trends and short-term fluctuations, e.g. due to events),
- changes to the transport network (e.g. additional or removed links),
- changes to the attributes of network links (e.g. blocked links / lanes, lower permitted speed, new traffic light phasing scheme),
- changes to the fleet composition (e.g. more environmentally-friendly vehicles)

Once the scenario parameters have been set locally, the user starts the simulation, effectively sending the parameter settings to the Model Server and requesting the model to be run on these data. When the simulation results are received by the SIMTRAP server they are automatically loaded into the ESS-ACA toolkit. The GIS functionality of the toolkit provides a wide range of display facilities for spatial (e.g. immissions or emissions) and linear (e.g. traffic density) data. In particular traffic and immission data can be overlaid and difference plots allow data from several runs (corresponding to different traffic control options) to be compared graphically.

WEB LINK or other reference of the DST

8th World Conference on Transport Research

DST No.: 39

DST name: IMPAQT

DST category: Software

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Contact Person First Name: Ling

Contact Person Last Name: Lim

Organisation Short Name: MMU

Organisation Legal Name: Manchester Metropolitan University

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SHORT DESCRIPTION

IMPAQT (**I**ntegrated **M**odular **P**rogram for **A**ir **Q**uality **T**ools) is a framework for linking widely used air quality tools, i.e. a transportation model, an emissions inventory, a dispersion model and a Geographic Information System (GIS). This idea is then expanded to include two new decision support tools to determine public exposure and to evaluate air quality improvement schemes.

WEB LINK or other reference of the DST

[Environmental Modelling & Software](#): Volume 20, Issue 7, July 2005, Pages 947-954

DST No.: 40

DST name: GIS-based Air Pollution Model

DST category: Software

Contact Person Title: N/A

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Contact Person Last Name: Elbir

Organisation Short Name: N/A

Organisation Legal Name: Dokuz Eylul University

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Country: Turkey

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Contact Person Phone n.: +90 2324530922

SHORT DESCRIPTION

The system is based on CALPUFF dispersion model, digital maps and related databases to estimate the emissions and spatial distribution of air pollutants. It applies a geographical information system. The system estimates ambient air pollution levels at high temporal and spatial resolutions. The system enables mapping of emissions and air quality levels. Mapping and scenario results can be compared with air quality limits. Impact assessment of air pollution abatement measures can also be carried out.

WEB LINK or other reference of the DST

Atmospheric Environment, Volume 38, Issue 27, September 2004, Pages 4509-4517

DST No.: 41

DST name: AirWare

DST category: Software

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: ESS

Organisation Legal Name: Environmental Software and Services GmbH

WEB link to Organisation: N/A

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SHORT DESCRIPTION

AirWare is an integrated, model-based information and decision support system for urban and industrial air quality assessment and management. The system supports the implementation of European and national environmental legislation such as the European Air Quality Framework Directive 96/62/EC and Daughter Directives, 88/609/EEC on major point sources, 89/429/EEC and 89/369/EEC on incinerators or 90/313/EEC on public access to environmental information. A wide range of assessment, display and reporting functions can be configured, including real-time alerts and alarms. A distributed client-server implementation and a fully web-based user interface exploit the latest dynamic 3D models and network computing technologies, including high-performance distributed GRID and cluster implementations. The AirWare models can run within a real-time expert system framework, that coordinates data acquisition from a range of information resources, hourly now-cast model runs with data assimilation, regular e.g., daily forecast runs, using observed or simulated dynamic emissions and 3D dynamic meteorological models as pre-processors. Designed primarily for urban agglomerations and industrial areas, the modular software system integrates monitoring data acquisition and analysis in real-time, emission data bases and an embedded GIS, simulation and optimisation models with coverage from local and near-field to regional scales with a nested grid approach and several, nested models with different resolution and scope. A rule-based expert system for environmental impact assessment and a range of decision support tools, including the multi-criteria optimization of cost-effective emission control strategies complement the basic simulation models and associated data bases.

WEB LINK or other reference of the DST

<http://www.ess.co.at/AIRWARE/>

DST No.: 42

DST name: EnviMan

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Michael

Contact Person Last Name: Powell

Organisation Short Name: Ecotech

Organisation Legal Name: Ecotech Pty Ltd

WEB link to Organisation: N/A

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SHORT DESCRIPTION

The EnviMan package is a modular built software that can be used for both industrial and urban applications. It provides a wide choice of data collection, reporting, display and other statistical functions, as well as local or remote communications with external computer systems. Features include:

- Modular design, upgradeable for future requirements
- Real-time data collection and validation
- Reporting and statistical analysis
- A Geographical Information System (GIS) software
- Modelling tools
- An effective tool for surveillance and analysis of the air quality
- Next-day forecasting and planning
- Allows management of the monitoring network and collection of data automatically
- Follows the guidelines for the European Union for air quality management
- A powerful tool for environmental impact assessment studies
- Combines and uses AQM, CEM and other monitoring data

WEB LINK or other reference of the DST

<http://www.ecotech.com.au/ecotech/nenav.nsf/childdocs/-50354391EBCE1679CA257156001F88BD-D82C0114BA147F41CA25715600207006-628F190E1D8C70EECA2573610005C31A>

DST No.: 43

DST name: EDSS

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Steven

Contact Person Last Name: Fine

Organisation Short Name: MCNC

Organisation Legal Name: North Carolina Supercomputing Center

WEB link to Organisation: N/A

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Country: USA

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Contact Person Phone n.: N/A

SHORT DESCRIPTION

EDSS can manage many types of models, but it has a higher level of support for chemistry-transport models (CTMs) for air quality modelling that follow a modular modelling structure developed by MCNC and the U.S. Environmental Protection Agency (EPA). The modelling structure defines calling interfaces for software modules that each simulates a different physical or chemical process, such as gas-phase chemistry, advection, or diffusion. Subroutines that follow the interface standards can be interchanged. For instance, different advection schemes can be tried by simply substituting one for another when the model is built. Modelers who follow the modular modelling structure can easily create and test new algorithms and parameterizations.

WEB LINK or other reference of the DST

http://citeseer.ist.psu.edu/cache/papers/cs/14286/http:zSzzSzenvpro.ncsc.orgzSzpub_fileszSzfine1996a.pdf/steven-s-fine-john.pdf

DST No.: 44

DST name: AirControlNET

DST category: Software

Contact Person Title: N/A

Contact Person First Name: <online contact/enquiry form>

Contact Person Last Name: <online contact/enquiry form>

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: N/A

Address (Street, N, PO box, zip code): US EPA, Office of Air Quality Planning and Standards (OAQPS),
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City: NC 27711,

Country: USA

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Contact Person Phone n.: +1 (919) 5415488

SHORT DESCRIPTION

AirControlNET is a PC-based database tool for conducting pollutant emissions control strategy and costing analysis. It contains a database of control measures and cost information for reducing the emissions of criteria pollutants (e.g., NO_x, SO₂, VOC, PM₁₀, PM_{2.5}, NH₃) as well as CO and Hg from point (utility and non-utility), area, nonroad, and mobile sources as provided in EPA's National Emission Inventory (NEI). Four key modules currently within AirControlNET version 4.1 include:

- 1) Control Scenarios Module.
- 2) Least-Cost Module.
- 3) Script Builder Module.
- 4) Sensitivity Module.

ACN also contains a module that allows users to run mobile source control strategies for criteria pollutants. Finally, ACN also includes exporting and reporting features that allows for export of emissions and cost data resulting from the user's queries into text files, spreadsheets, pre-formatted reporting tables, or maps.

WEB LINK or other reference of the DST

<http://www.epa.gov/ttn/ecas/AirControlNET.htm>

DST No.: 45

DST name: Integrated Planning Model (IPM)

DST category: Software

Contact Person Title: N/A

Contact Person First Name: <online contact/enquiry form>

Contact Person Last Name: <online contact/enquiry form>

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: N/A

Address (Street, N, PO box, zip code): US EPA, Clean Air Markets Division,
1200 Pennsylvania Avenue, NW, Mail Code 6204J

City: Washington, DC 20460

Country: USA

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SHORT DESCRIPTION

IPM is the model that EPA uses to analyze the impact of air emissions policies on the U.S. electric power sector over a 20-year time horizon. EPA uses the Integrated Planning Model (IPM) to analyze the projected impact of environmental policies on the electric power sector in the 48 contiguous states and the District of Columbia. Developed by ICF Consulting, Inc. and used to support public and private sector clients, IPM is a multi-regional, dynamic, deterministic linear programming model of the U.S. electric power sector. It provides forecasts of least-cost capacity expansion, electricity dispatch, and emission control strategies for meeting energy demand and environmental, transmission, dispatch, and reliability constraints. IPM can be used to evaluate the cost and emissions impacts of proposed policies to limit emissions of sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon dioxide (CO₂), and mercury (Hg) from the electric power sector. Among the factors that make IPM particularly well suited to model multi-emissions control programs are (1) its ability to capture complex interactions among the electric power, fuel, and environmental markets; (2) its detail-rich representation of emission control options encompassing a broad array of retrofit technologies along with emission reductions through fuel switching, changes in capacity mix and electricity dispatch strategies; and (3) its capability to model a variety of environmental market mechanisms, such as emissions caps, allowances, trading, and banking.

WEB LINK or other reference of the DST

<http://www.epa.gov/airmarkets/progsregs/epa-ipm/index.html>

DST No.: 46

DST name: BenMAP

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Neal

Contact Person Last Name: Fann

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: N/A

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SHORT DESCRIPTION

BenMAP is a Windows-based computer program that estimates the health benefits from improvements in air quality. Some of the purposes for which BenMAP is used include the following:

1. Generation of population/community level ambient pollution exposure maps;
2. Comparison of benefits across multiple regulatory programs;
3. Estimation of health impacts associated with exposure to existing air pollution concentrations;
4. Estimation of health benefits of alternative ambient air quality standards;
5. Performance of sensitivity analyses of health or valuation functions, or of other inputs; and
6. Hypothetical, or “what-if,” type analyses.

WEB LINK or other reference of the DST

<http://www.epa.gov/air/benmap/>

DST No.: 47

DST name: MIT Integrated Global System Model: Anthropogenic Emissions and Policy Analysis Component (MIT IGSM EPPA)

DST category: Software

Contact Person Title: N/A

Contact Person First Name: <online contact/enquiry form>

Contact Person Last Name: <online contact/enquiry form>

Organisation Short Name: MIT

Organisation Legal Name: Massachusetts Institute of Technology

WEB link to Organisation: N/A

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SHORT DESCRIPTION

The MIT Emissions Prediction and Policy Analysis (EPPA) model is used to analyze the processes that produce greenhouse-relevant emissions, and to assess the consequences of policy proposals intended to control these emissions. The EPPA model takes account of the supply of input factors available to a region: labor, capital, imports, and natural resources. These are matched with the demand from various sectors. The model takes account of estimated in-ground resources in the different regions, and their depletion as production proceeds over time. It separately identifies the electric sector, and accounts for its input fuels, including nuclear and other non-fossil technologies, for example, wind and solar. Greenhouse- and pollution-relevant gases resulting from the economic activities considered in the model are predicted for each economic region, and then used as inputs to the climate model.

WEB LINK or other reference of the DST

<http://web.mit.edu/globalchange/www/eppa.html>

DST No.: 48

DST name: Second Generation Model (SGM)

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Charlette

Contact Person Last Name: Geffen

Organisation Short Name: N/A

Organisation Legal Name: Pacific Northwest National Laboratory

WEB link to Organisation: N/A

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SHORT DESCRIPTION

This model is a collection of 14 regional computable general equilibrium models with an emphasis on energy transformation and consumption, economic activity, and greenhouse gas emissions. The SGM projects economic activity, energy consumption and greenhouse gas emissions for each region in five-year time steps from 1990 through 2050. The SGM contains a large set of parameters to simulate technical change over time for any given production process. These parameters, individualized to production processes, influence the rate of change in efficiency of the inputs to production sectors in the model. The structure of the model resolves five issues: regional detail, energy sector detail, scope of human activities, temporal resolution, and theoretical description. Regional detail includes both individual countries and regional groupings.

WEB LINK or other reference of the DST

<http://www.pnl.gov/gtsp/research/sgm.stm>

DST No.: 49

DST name: MiniCAM

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Charlette

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SHORT DESCRIPTION

The MiniCAM is a long-term, multi model, partial-equilibrium model of the energy, agriculture, and climate system. It contains an emissions model that considers both energy and land use emissions and integrally runs the MAGICC climate model as a part of every run, so that climate implications of scenarios and management strategies are readily available. It considers the full range of greenhouse gases and the major new alternative technologies that are pertinent to questions about the future structure of energy supply. The MiniCAM is used for modeling over long time scales where the characteristics of existing capital stocks are not the dominant factor in determining the dynamics of the energy system.

WEB LINK or other reference of the DST

<http://www.pnl.gov/gtsp/research/minicam.stm>

DST No.: 50

DST name: TRIM

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Deidre

Contact Person Last Name: Murphy

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: N/A

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SHORT DESCRIPTION

The [TRIM design](#) includes three individual modules:

- The *Environmental Fate, Transport, and Ecological Exposure* module, [TRIM.FaTE](#), accounts for movement of a chemical through a comprehensive system of discrete compartments (e.g., media and biota) that represent possible locations of the chemical in the physical and biological environments of the modeled ecosystem and provides an inventory, over time, of a chemical throughout the entire system. In addition to providing exposure estimates relevant to ecological risk assessment, TRIM.FaTE generates media concentrations relevant to human ingestion exposures that can be used as input to the ingestion component of the *Exposure-Event* module.
- *Exposure-Event* module, [TRIM.Expo](#). In TRIM.Expo, human exposures are evaluated by tracking either randomly selected individuals that represent an area's population or population groups referred to as "cohorts" and their inhalation and ingestion through time and space. The [inhalation component](#) is currently available.
- In the *Risk Characterization* module, [TRIM.Risk](#), estimates of human exposures or doses are characterized with regard to potential risk using the corresponding exposure- or dose-response relationships. The TRIM.Risk module is also designed to characterize ecological risks from multimedia exposures. The output from TRIM.Risk is intended to include documentation of the input data, assumptions in the analysis, and measures of uncertainty, as well as the results of risk calculations and exposure analysis.

The uncertainty and variability features (e.g., sensitivity & Monte Carlo analysis) augment TRIM's capability for performing iterative analyses. For example, the user may perform assessments varying from simple deterministic screening analyses using conservative default parameters to refined and complex risk assessments where the impacts of parameter uncertainty and variability are assessed for critical parameters. Given the modular design of TRIM, the user

selects any one or more of the modules for an assessment depending on their needs.

WEB LINK or other reference of the DST

http://www.epa.gov/ttn/fera/trim_gen.html

DST No.: 51

DST name: AIDAIR

DST category: Software

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WEB link to Organisation: N/A

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SHORT DESCRIPTION

The system combines four paradigms: dynamic emission/immission modelling, traffic equilibrium modelling that estimates the traffic loads and therefore the emissions on each street segment, activity analysis models proposing efficient energy/technology choices and as a consequence emissions and multi-criteria analysis of air pollution impacts, in particular the effects on public health. A dynamic and integrated software framework, including a geographic information system (GIS), supports this implementation. AIDAIR implements a multi-tiered, iterative approach for the design of a strategy:

1 Obtain emission scenarios for different sectors (energy, transportation) through optimization models maintaining economic efficiency and meeting sectoral objectives and constraints. This is based on rational economic behaviour of realistic agents at the sectoral level. The sectoral optimization approach is based on the use of models for energy, e.g. MARKAL optimizing an energy demand–supply balance for the city, including bounds on pollution emissions, and for transportation, e.g. EMME/2 simulating traffic equilibria, which again constitute an emission scenario.

2 Get a representation of the resulting ambient air quality as a function of these emissions for different averaging periods, relating to air quality standards through solving the dispersion equations with spatially distributed air quality models.

3 Obtain spatially distributed measures of environmental and public health impacts based on land-use information and population distribution, resulting in a spatially distributed measure of vulnerability or damage function, for different classes of pollutants.

4 Minimize this distributed impact function subject to economic constraints by distributing the maximum acceptable costs. Alternatively, subject to environmental quality constraints, allocate the maximum permissible emission levels to traffic and energy uses while maintaining economic efficiency. This global optimization takes emission scenarios (unmitigated or sectorally optimized) as its starting point and is based on a source–receptor matrix computed by a long term air quality model.

5 Use the permissible emission levels obtained as a constraint on the previous sectoral optimization. Feedback loops from the impact analysis and global optimization can help to redefine objectives and constraints of the sectoral models.

6 Repeat the above steps to obtain a number of (sectorally) optimal scenarios.

7 Use a discrete multi-criteria tool to find a preferred compromise solution that satisfies the objectives of all groups of actors.

WEB LINK or other reference of the DST

Int. J. Environment and Pollution, Vol. 12 (1999), Nos. 2/3, pp. 125–146.

DST No.: 52

DST name: IEUBK

DST category: Software

Contact Person First Name: Paul

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Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: N/A

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SHORT DESCRIPTION

The focus of the integrated exposure uptake biokinetic (IEUBK) model for lead in children is the prediction of blood lead concentrations in young children exposed to lead from several sources and by several routes. The model is a four-step process that mathematically and statistically links environmental lead exposure to blood lead concentrations for a population of children (0-84 months of age).

1. Exposure: Exposure can be thought of as the contact of a chemical, or other agent, with the absorption or exchange boundaries of an organism, such as the gut, lungs, and skin. The results from the exposure component of the IEUBK model are estimated intake rates for the quantities of lead inhaled or ingested from environmental media. The media addressed by the IEUBK model include soil, house dust, drinking water, air, and food. Paint is usually addressed in terms of its contribution to the measured concentrations of lead in soil or house dust.

2. Uptake: The uptake component models the process by which lead intake (lead that has entered the child's body through ingestion or inhalation) is transferred to the blood plasma. Uptake ($\mu\text{g}/\text{day}$) is the quantity of lead absorbed per unit time from portals of entry (gut, lung) into the systemic circulation of blood. Only a fraction of the lead entering the body through the respiratory or gastrointestinal (GI) tracts is actually absorbed into the systemic circulation. This absorption fraction is, by convention, termed bioavailability and provides the most convenient parameterization of the uptake process. The IEUBK model addresses the different bioavailabilities of lead from different environmental media and provides for a partial saturation of absorption at high levels of lead intake.

3. Biokinetics: The biokinetic component of the IEUBK model is a mathematic expression of the movement of absorbed lead throughout the body over time by physiologic or biochemical processes. The biokinetic component converts the total lead uptake rate from the uptake component into an input to the central plasma-extracellular fluid (ECF) compartment. Transfer coefficients are used to model movement of lead between the internal compartments and to the excretion pathways. These quantities are combined with the total lead uptake rate to continuously recalculate the lead masses in each of the body compartments and especially the changing concentration of lead in blood.

4. Variability: An important goal of the IEUBK model is to address variability in blood lead concentrations among exposed children. Children having contact with the same concentrations of environmental lead can develop very different blood lead concentrations due to differences in behavior, household characteristics, and individual patterns of lead uptake and biokinetics. The IEUBK model uses a log-normal probability distribution to characterize this variability. The biokinetic component output provides a central estimate of blood lead concentration, which is used to provide the geometric mean parameter for the log-normal model. The interindividual variability in blood lead concentrations is characterized by a geometric standard deviation (GSD).

WEB LINK or other reference of the DST

Environ Health Perspect 106(Suppl 6):1513-1530 (1998)

DST No.: 53

DST name: Multivariate Linear Regression Model

DST category: N/A

Contact Person Title: N/A

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Contact Person Last Name: Lewin

Organisation Short Name: N/A

Organisation Legal Name: Agency for Toxic Substances and Disease Registry

WEB link to Organisation: N/A

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SHORT DESCRIPTION

Using multiple regression analysis and controlling for other exposures and covariates, a slope factor for the relationship between SLLs and BLLs is established. This slope factor could be used to predict BLLs when only SLLs and the values of various covariates are known. In using a regression model to predict BLLs from SLLs, however, it is noted that the validity of the predicted value depended on the choice of covariates and the appropriateness of the model.

WEB LINK or other reference of the DST

Environ Res 1999; 81:52–61

DST No.: 54

DST name: AMDTreat

DST category: Software

Contact Person Title: N/A

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Organisation Short Name: OSM

Organisation Legal Name: U.S. Office of Surface Mining Reclamation and Enforcement

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SHORT DESCRIPTION

AMDTreat is used for predicting the costs associated with construction of passive and active water treatment systems for acid mine drainage (AMD) problems. The program can estimate capital as well as annual costs, so an accurate cost can be estimated for the life of the treatment system. The program requires site-specific user input, including water quality, material, and site information. The program includes default rates for the materials and labor; however, the user may also enter site- or area-specific rates.

WEB LINK or other reference of the DST

<http://amdtreat.osmre.gov/>

DST No.: 55

DST name: Adaptive Risk Assessment Modeling System - ARAMS

DST category: Software

Contact Person Title: Dr

Contact Person First Name: Mark

Contact Person Last Name: Dortch

Organisation Short Name: USACE

Organisation Legal Name: The United States Army Corps of Engineers

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SHORT DESCRIPTION

ARAMS is a software platform that incorporates various existing databases and models for source descriptions, media fate and transport, exposure pathways, intake and uptake, and effects (health impacts) into a conceptual site model (CSM) framework. The hub of ARAMS is an object-oriented CSM based on the Framework for Risk Analysis in Multimedia Environmental Systems (FRAMES). The CSM links pathway-specific risk models and databases to estimate human health or ecological risk.

WEB LINK or other reference of the DST

<http://el.erdc.usace.army.mil/arams/>

DST No.: 56

DST name: Biobalance

DST category: Software

Contact Person Title: N/A

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SHORT DESCRIPTION

The Biobalance Tool Kit provides a suite of analytical models and routines to estimate the mass balance of electron donors and acceptors in a chlorinated solvent plume emanating from a source area. These tools are designed to give site managers an approach to demonstrate whether the assimilative capacity of a system is capable of reducing or eliminating the mass flux of chlorinated solvents emitted from a source zone. The spreadsheet tool uses hydrogeologic, geochemical, and contaminant data to simulate the long-term behavior of sources at these sites.

The toolkit comprises of the following modules:

Source Module: The source module uses simple mass balance models to provide estimates of the reduction in Remediation Time Frame (RTF) for a given amount of source depletion. The module has the capacity to address the impact of different remediation strategies on the source mass and the mass flux from the source (e.g. reducing flux via a permeable reactive barrier, or reducing source mass from a source depletion technology). Both vadose zone and submerged sources can be modeled.

Competition Module: This module calculates how mass flux of competing electron acceptors such as dissolved oxygen, nitrate, sulfate into the source zone translates into lost electron donor capacity. The impact of ferric iron reduction and methane generation is also included in the mass balance.

Donor Module: Users can estimate the sustainability of a source zone based on either NAPL composition data or dissolved constituent data. In this module, stoichiometric relationships are used to calculate the ratio of electron donor to the chlorinated solvent present in the source zone.

Plume Module: This module helps predict the benefit of remediation strategies on plume length and mass flux. Plume length vs. time and mass flux vs. distance curves are generated using an analytical groundwater model. The relative contribution of natural attenuation processes such as dispersion, sorption, degradation, and source decay to mass flux are calculated and presented in a graphical format.

Final Mass Balance: Key mass balances on solvents, donors, and competing electron acceptors over the lifetime of the source are integrated and presented. The spreadsheet tool uses hydrogeologic, geochemical, and contaminant data that are typically generated from MNA projects at chlorinated solvent sites to simulate the long-term behavior of sources at these sites.

WEB LINK or other reference of the DST

<http://www.gsi-net.com/Software/biobalancetoolkit.asp>

DST No.: 57

DST name: BIOCHLOR

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Daniel

Contact Person Last Name: West

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Organisation Legal Name: Environmental Protection Agency, Center for Subsurface Modeling Support

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SHORT DESCRIPTION

BIOCHLOR is a screening model that simulates remediation by natural attenuation of dissolved solvents at chlorinated solvent release sites. BIOCHLOR can be used to simulate solute transport without decay and solute transport with biodegradation modeled as a sequential first-order process within one or two different reaction zones.

BIOCHLOR is an easy-to-use screening model that simulates remediation by natural attenuation (RNA) of dissolved solvents at chlorinated solvent release sites. The software, programmed in the Microsoft Excel spreadsheet environment and based on the Domenico analytical solute transport model, has the ability to simulate 1-D advection, 3-D dispersion, linear adsorption, and biotransformation via reductive dechlorination (the dominant biotransformation process at most chlorinated solvent sites). Reductive dechlorination is assumed to occur under anaerobic conditions and dissolved solvent degradation is assumed to follow a sequential first-order decay process. BIOCHLOR includes three different model types:

- Solute transport without decay
- Solute transport with biotransformation modeled as a sequential first-order decay process
- Solute transport with biotransformation modeled as a sequential first-order decay process with two different reaction zones (i.e., each zone has a different set of rate coefficient values)

WEB LINK or other reference of the DST

<http://www.epa.gov/ada/csmos/models/biochlor.html>

DST No.: 58

DST name: BIOPLUME III

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Daniel

Contact Person Last Name: West

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency, Center for Subsurface Modeling Support

WEB link to Organisation: <http://www.epa.gov/ada/csmos.html>

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SHORT DESCRIPTION

BIOPLUME III is a numerical two-dimensional (2D) model that tracks the fate and transport of aromatic hydrocarbons. The user inputs 2D contour maps of hydrologic parameters such as hydraulic head and hydraulic conductivity using a digitizing tool. Maps of initial concentrations of petroleum constituents and electron acceptors are input in the same manner. The model then calculates concentration contours at user-specified time intervals, using either an "instantaneous reaction" model based on stoichiometry, or a first-order kinetic model.

WEB LINK or other reference of the DST

<http://www.epa.gov/ada/csmos/models/bioplume3.html>

DST No.: 59

DST name: BIOSCREEN

DST category: Software

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Contact Person First Name: Daniel

Contact Person Last Name: West

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency, Center for Subsurface Modeling Support

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SHORT DESCRIPTION

BIOSCREEN is a natural attenuation screening model that simulates monitored natural attenuation (MNA) of dissolved hydrocarbon species at petroleum fuel release sites. The software is based on the Domenico analytical solute transport model and is programmed in a Microsoft Excel spreadsheet. BIOSCREEN is designed to simulate biodegradation by both aerobic and anaerobic processes and can be used to predict the length of a hydrocarbon plume. The user must specify a source term as well as hydrogeologic and geochemical parameters.

Includes three different model types: (1) solute transport without decay, (2) solute transport with biodegradation modeled as a first-order decay process (simple, lumped-parameter approach), and (3) solute transport with biodegradation modeled as an instantaneous biodegradation reaction with multiple soluble electron acceptors including dissolved oxygen, nitrate, and sulfate. The model is designed to simulate biodegradation by both aerobic and anaerobic reactions.

WEB LINK or other reference of the DST

<http://www.epa.gov/ada/csmos/models/bioscrn.html>

DST No.: 60

DST name: Calendex™

DST category: Software

Contact Person Title: N/A

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Organisation Short Name: EX

Organisation Legal Name: Exponent Inc.

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SHORT DESCRIPTION

An advanced exposure and risk analysis tool for estimating exposure of the U.S. population and more than 30 of its subgroups, to the following substances:

- Pesticides in food and the residential environment
- Food, air and water contaminants
- Chemical ingredients in formulated products

The Calendex™ aggregate exposure model estimates human exposure to chemical residues in foods and home-based chemical treatments, such as pest control and turf treatments. The model assesses acute, short-term, intermediate, or chronic time periods for a large, representative sample of the U. S. population and for a wide range of subpopulations. The model simultaneously accounts for the temporal, spatial, and demographic variation in chemical use and chemical users.

The Calendex™ model is a calendar-based system that uses Monte Carlo sampling techniques to estimate the distributions of exposure. For each day of the year, the model combines exposure distributions with the probability that an exposure to a given compound could occur as a result of a previous or concurrent application of a product containing that compound. The model takes into account the probability that exposures to more than one product may occur on a single day, and provides a more realistic exposure assessment than would occur if exposures resulting from single uses were summed.

WEB LINK or other reference of the DST

<http://www.exponent.com/practices/foodchemical/calendex.html>

DST No.: 61

DST name: CAMEO

DST category: Software

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: OEM and NOAA

Organisation Legal Name: EPA's Office of Emergency Management and the National Oceanic and Atmospheric Administration Office of Response and Restoration

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SHORT DESCRIPTION

CAMEO is a system of software applications used widely to plan for and respond to chemical emergencies. The CAMEO system integrates a chemical database, a data management system, an air dispersion model, and a mapping capability. All modules work interactively to share and display critical information in a timely fashion.

WEB LINK or other reference of the DST

<http://www.epa.gov/emergencies/content/cameo/index.htm>

DST No.: 62

DST name: ConsExpo

DST category: Software

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: RIVM

Organisation Legal Name: National Institute for Public Health and the Environment

WEB link to Organisation: <http://www.rivm.nl/en/>

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SHORT DESCRIPTION

Mathematical models are available for the exposure assessment of compounds in consumer products. Descriptive models have been developed within RIVM to be able to estimate and assess the exposure to substances from consumer products and the uptake of these by humans. These models are brought together in a computer program called ConsExpo. When a model is chosen in ConsExpo, and the required parameters are filled in, the program calculates the exposure to, and the uptake of, the substance involved.

ConsExpo is a set of coherent, general models that enables the estimation and assessment of the exposure to substances from consumer products and their uptake by humans. Data about the application of products and data from mathematical models are used to build up the program.

Using ConsExpo, it is possible to calculate the exposure to consumer products in a standardized way. ConsExpo can carry out not only calculations with point values but also calculations with distributions. Sensitivity analyses can be carried out as well.

WEB LINK or other reference of the DST

<http://www.rivm.nl/en/healthanddisease/productsafety/Main.jsp>

DST No.: 63

DST name: DST on manure management

DST category: Software

Contact Person Title: N/A

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Organisation Short Name: LEAD

Organisation Legal Name: Livestock, Environment And Development

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SHORT DESCRIPTION

Pig production has expanded dramatically in recent years. A high pressure to environment has accompanied this increase. As major environmental impacts result from livestock excreta, special care has to be given to manure management. If there are plenty of manure management techniques available, they are often only known locally. Besides, the farmer or the decision maker most often insufficiently knows the economic, environmental and public health implications of these technical options.

To fill this gap, the LEAD Initiative is preparing a **Decision Support Tool (DST) on manure management** to facilitate the identification, evaluation and selection of manure management options for confined pig production in rapidly growing economies.

WEB LINK or other reference of the DST

<http://lead.virtualcentre.org/en/dec/manure/default.htm>

DST No.: 64

DST name: Exposure & Fate Assessment Screening Tool (E-FAST)

DST category: Software

Contact Person Title: N/A

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Organisation Short Name: EPA

Organisation Legal Name: United States Environment Protection Agency

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Country: USA

Contact Person Email: flessner.conrad@epa.gov

Contact Person Phone n.: N/A

SHORT DESCRIPTION

Provides screening-level estimates of the concentrations of chemicals released to air, surface water, landfills, and from consumer products. Estimates provided are potential inhalation, dermal and ingestion dose rates resulting from these releases. Modeled estimates of concentrations and doses are designed to reasonably overestimate exposures, for use in screening level assessment.

E-FAST calculates appropriate human potential dose rates for a wide variety of chemical exposure routes. and estimates the number of days per year that an aquatic ecotoxicological concern concentration will be exceeded for organisms in the water column.

WEB LINK or other reference of the DST

<http://www.p2pays.org/ref/18/17862.htm>

DST No.: 65

DST name: FIELDS (Field Environmental Decision Support)

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Brian

Contact Person Last Name: Cooper

Organisation Short Name: EPA

Organisation Legal Name: Environment Protection Agency

WEB link to Organisation: www.epa.gov

Address (Street, N, PO box, zip code): 77 W. Jackson Blvd, Chicago

Country: USA

Contact Person Email: cooper.brian@epa.gov

Contact Person Phone n.: +1 (312) 3538651

SHORT DESCRIPTION

The FIELDS Tools for ArcView (Version 3.5) are a collection of 11 independent ArcView extensions (modules) that provide spatial analysis in support of environmental decision-making. Modules include:

- Database (includes a query tool)
- Sample design
- Geospatial modeling and analysis
- Human health and ecological risk assessment
- Remedial Tools

FIELDS also links directly to other DSTs such as F/S Plus and Visual Sample Plan.

WEB LINK or other reference of the DST

<http://www.epa.gov/region5fields/>

DST No.: 66

DST name: FSPLUS

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Brian

Contact Person Last Name: Cooper

Organisation Short Name: EPA

Organisation Legal Name: United States Environment Protection Agency

WEB link to Organisation: www.epa.gov

Address (Street, N, PO box, zip code): 77 W. Jackson Blvd, Chicago

Country: USA

Contact Person Email: cooper.brian@epa.gov

Contact Person Phone n.: +1 (312) 3538651

SHORT DESCRIPTION

The FIELDS Tools for ArcView (version 3.5) are a collection of ArcView-based extensions (modules) that include Sample Design (as well as a link to Visual Sample Plan, VSP), Database Query, Geospatial Modeling and Analysis, and Human Health and Ecological Risk Assessment.

Taken together, the FIELDS Tools for ArcGIS and F/S Plus form the foundation for a system that provides data analysis and interpretation for environmental decision-making. The results allow project managers to evaluate the extent of contamination and hot spot sizes, estimate health risks, prioritize site goals, and weigh potential actions.

F/S Plus (version 1.5) is a stand-alone software that displays and allows analyses of 2D and 3D data. F/S Plus can perform the following functions:

- import and view point, line, polygon, and grid files
- execute three different interpolation methods: Inverse Distance Weighting (IDW), Natural Neighbor (NN), and Kriging
- view resulting 2D and 3D grids as "blocks" or "isosurfaces"
- volume estimation, interpolation error estimation, and grid statistics
- clipping (top, bottom, and lateral)
- 3D-slicing and export to ArcGIS©
- cross-section creation
- polygon-builder tool
- viewing functions (e.g., zoom, transparency, point size, mirror)

WEB LINK or other reference of the DST

<http://www.epa.gov/region5fields/htm/software.htm>

DST No.: 67

DST name: GeoSEM

DST category: Software

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: Thayer or Stephenson

Organisation Short Name: SRC

Organisation Legal Name: Syracuse Research Corp

WEB link to Organisation: www.syrres.com

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: Thayer@syrres.com , Stephenson@syrres.com

Contact Person Phone n.:

SHORT DESCRIPTION

GeoSEM is a geographic information system (GIS)-based program for incorporating spatial statistics in human health and ecological exposure assessment. With GeoSEM, the user can evaluate the spatial information contained in analytical data by comparing the results obtained using classical "non-spatial" statistical methods with the results obtained using one of the three spatial methods available in GeoSEM: spatial weighting, kriging, and simulation. The results can be used to estimate exposure point concentrations at the site.

WEB LINK or other reference of the DST

<http://esc.syrres.com/geosem/default.htm>

DST No.: 68

DST name: HSSM

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Daniel

Contact Person Last Name: West

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency, CSMoS

WEB link to Organisation: www.epa.gov/ada/csmos.html

Address (Street, N, PO box, zip code): Ada, Oklahoma

Country: USA

Contact Person Email: west.daniel@epa.gov (csmos.ada@epa.gov)

Contact Person Phone n.:

SHORT DESCRIPTION

The Hydrocarbon Spill Screening Model (HSSM) is intended to simulate releases of light nonaqueous phase liquids (LNAPLs) to the subsurface environment. The model is based on simplified conceptualizations of the flow and transport phenomena. The model consists of separate modules for LNAPL flow through the vadose zone, spreading in the capillary fringe, and transport of chemical constituents of the LNAPL in a water table aquifer.

The model is based on the KOPT, OILENS and TSGPLUME models.

WEB LINK or other reference of the DST

<http://www.epa.gov/ada/csmos/models/hssmwin.html>

DST No.: 69

DST name: J&E Model

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Janine

Contact Person Last Name: Dinan

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency, CSMoS

WEB link to Organisation: www.epa.gov

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: <http://www.epa.gov/oswer/riskassessment/comments.htm>
- contact form online (could not find email address to the possible contact person.)

Can try dinan.janine@epa.gov

Contact Person Phone n.:

SHORT DESCRIPTION

The J&E Model is a one-dimensional analytical solution to convective and diffusive vapor transport into indoor spaces. It provides an estimated attenuation coefficient that relates the vapor concentration in the indoor space to the vapor concentration at the source of contamination. The model can simulate either a steady-state solution to vapor transport (constant source) or a quasi-steady-state solution (diminishing source). Inputs to the model include the chemical properties of the contaminant, the properties of the soil in the saturated and unsaturated zones, and the structural properties of the building.

WEB LINK or other reference of the DST

http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm

DST No.: 70

DST name: MAROS

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Mindy

Contact Person Last Name: Vanderford

Organisation Short Name: GSI

Organisation Legal Name: GSI Environmental Inc.

WEB link to Organisation: www.gsi-net.com

Address (Street, N, PO box, zip code): 2211 Norfolk St, Houston, Texas

Country: USA

Contact Person Email: mv@gsi-net.com

Contact Person Phone n.:

SHORT DESCRIPTION

MAROS is a database application developed to assist users with groundwater data trend analysis and long term monitoring optimization at contaminated groundwater sites. MAROS applies statistical methods to answer the following questions:

- What constituents of concern (COC) are identified at the site?
- Are the temporal trends in groundwater data statistically significant?
- Are there redundant wells in the groundwater monitoring network?
- What is the suggested frequency of future sampling?
- Do new wells need to be added to adequately characterize the plume ?

WEB LINK or other reference of the DST

<http://www.gsi-net.com/software/maros/Maros.asp>

DST No.: 71

DST name: MCCEM- Multi- Chamber Concentration and Exposure Model

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Christina

Contact Person Last Name: Cinalli

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: www.epa.gov

Address (Street, N, PO box, zip code): 1200 Pennsylvania Avenue N.W.,
Washington, D.C.

Country: USA

Contact Person Email: cinalli.christina@epa.gov

Contact Person Phone n.:

SHORT DESCRIPTION

Estimates average and peak indoor air concentrations of chemicals released from products or materials in houses, apartments, townhouses, or other residences. The data libraries contained in MCCEM are limited to residential settings. However, the model can be used to assess other indoor environments (e.g. schools, offices) if the user can supply the necessary inputs.

Estimates inhalation exposures to these chemicals, calculated as single day doses, chronic average daily doses, or lifetime average daily doses. (All dose estimates are potential doses; they do not account for actual absorption into the body.)

WEB LINK or other reference of the DST

<http://www.epa.gov/oppt/exposure/pubs/mccem.htm>

DST No.: 72

DST name: NAS

DST category: Software

Contact Person Title: Dr.

Contact Person First Name: Mark A.

Contact Person Last Name: Widdowson

Organisation Short Name: N/A

Organisation Legal Name: Virginia Tech

WEB link to Organisation: <http://www.cee.vt.edu/>

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: mwiddows@vt.edu

Contact Person Phone n.:

SHORT DESCRIPTION

The Natural Attenuation Software (NAS) is a graphical user interface for estimating the time required to achieve site-specific goals at sites contaminated with either fuels or chlorinated solvents. NAS requires the user to enter site characterization data to calculate the natural attenuation capacity (NAC) of various contaminants at a site. The user can use the NAC to evaluate the effects of source reduction or complete removal in terms of meeting a user-specified contaminant concentration at a specific point of compliance.

NAS development is funded by Southern Division, Naval Facilities Engineering Command (NAVFAC) and Naval Facilities Engineering Service Center (NFESC), and has resulted from a continuing collaboration between Virginia Tech, United States Geological Survey (USGS), and NAVFAC.

WEB LINK or other reference of the DST

<http://www.nas.cee.vt.edu/index.php>

DST No.: 73

DST name: On Site

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Jim

Contact Person Last Name: Weaver

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: www.epa.gov

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: weaver.jim@epa.gov

Contact Person Phone n.:

SHORT DESCRIPTION

On Site was developed to provide modelers and model reviewers with prepackaged tools (calculators) for site assessment calculations. These calculators provide methods and data for common calculations used in assessing impacts from subsurface contamination and encourage consistency in their application among a diverse user community. The components of On Site include:

- Parameter estimates
- Simple transport models
- Unit conversions
- Scientific demonstrations

WEB LINK or other reference of the DST

<http://www.epa.gov/athens/learn2model/part-two/onsite/>

DST No.: 74

DST name: R.A.T - Rapid Assessment Tools Software

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Brian

Contact Person Last Name: Cooper

Organisation Short Name: EPA

Organisation Legal Name: Environmental Protection Agency

WEB link to Organisation: www.epa.gov

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: cooper.brian@epa.gov

Contact Person Phone n.:

SHORT DESCRIPTION

Rapid Assessment Tools Software (R.A.T.) is a Microsoft Windows based software package developed by EPA Region 5 FIELDS Team that provides field teams real-time field data collection and mapping. Specifically the software enables users to: 1. Collect data in real-time from GPS and environmental monitoring devices using their digital data outputs. 2. Integrate device data with descriptive data in a standard ESRI Shapefile. 3. Generate polygons, lines, and point sample designs. 4. View collected data with reference datasets (e.g. aerials, roads, and facilities). 5. Perform simple interpolations and view statistics, histograms, and trend plots. 6. Export data as ESRI Shapefiles, SCRIBE database (.csv) and Access database. 7. Send automated data transfers via e-mail. 8. View data collection remotely via FTP server.

WEB link or other reference of the DST

<http://epa.instepsoftware.com/rat/>

DST No.: 75

DST name: RESRAD

DST category: Software

Contact Person Title: Dr

Contact Person First Name: Charley

Contact Person Last Name: Yu

Organisation Short Name: EVS

Organisation Legal Name: Environmental Science Division

WEB link to Organisation: www.ead.anl.gov/index.cfm

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: cyu@anl.gov / resrad@anl.gov

Contact Person Phone n.:

SHORT DESCRIPTION

RESRAD is code for evaluation of risk posed by radioactively contaminated sites. The Nuclear Regulatory Commission (NRC) has approved RESRAD for dose evaluation by licensees involved in decommissioning, and for NRC staff to assess waste disposal requests and dose evaluations. RESRAD follows the U.S. Environmental Protection Agency's (EPA's) Risk Assessment Guidance for Superfund (RAGS).

WEB link or other reference of the DST

<http://web.ead.anl.gov/resrad/home2/>

DST No.: 76

DST name: SADA - Spatial Analysis and Decision Assistance

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Louis J.

Contact Person Last Name: Gross

Organisation Short Name: UT

Organisation Legal Name: University of Tennessee, The Institute for Environmental Modeling

WEB link to Organisation: <http://www.utk.edu/> / <http://www.tiem.utk.edu/>

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: gross@tiem.utk.edu

Contact Person Phone n.:

SHORT DESCRIPTION

Spatial Analysis and Decision Assistance (SADA) incorporates tools from the field of environmental assessment into an effective problem-solving environment. The capabilities of SADA can be used independently or collectively to address site-specific concerns in characterizing a contaminated site, assessing risk, selecting the location of future samples, and when designing remedial action. These tools include:

- Data exploration and visualization
- Statistical analysis
- Human health and ecological risk assessments
- Sample plan design
- Cost/benefit analysis

Geospatial interpolation.

WEB link or other reference of the DST

<http://www.tiem.utk.edu/~sada/index.shtml>

DST No.: 77

DST name: SourceDK

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Shahla

Contact Person Last Name: Farhat

Organisation Short Name: GSI

Organisation Legal Name: GSI Environmental Inc

WEB link to Organisation: <http://www.gsi-net.com/aboutgsi.asp>

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: skfarhat@gsi-net.com

Contact Person Phone n.:

SHORT DESCRIPTION

SourceDK is a decision support tool for developing a screening-level model to estimate groundwater remediation timeframes and associated uncertainties at sites where groundwater is contaminated by a source in the unsaturated zone. This software is programmed in a Microsoft Excel spreadsheet and provides a graphic output of cleanup time based on the sampling results. SourceDK interfaces with MAROS and BIOSCREEN.

WEB link or other reference of the DST

<http://www.gsi-net.com/Software/SourceDK.asp>

DST No.: 78

DST name: VSP - Visual Sampling Plan

DST category: Software

Contact Person Title: N/A

Contact Person First Name: N/A

Contact Person Last Name: N/A

Organisation Short Name: PNL

Organisation Legal Name: Pacific Northwest National Laboratory

WEB link to Organisation: www.pnl.gov/

Address (Street, N, PO box, zip code): N/A

Country: USA

Contact Person Email: vsp@pnl.gov

Contact Person Phone n.:

SHORT DESCRIPTION

Visual Sample Plan (VSP) provides statistical solutions to sampling design problems. VSP helps the user select the correct number and location of samples so that a required confidence level for decision-making can be achieved. VSP can be used to conduct Step 7 of the data quality objectives (DQO) process.

WEB link or other reference of the DST <http://vsp.pnl.gov/>

DST No.: 79

DST name: TEE

DST category: Software

Contact Person Title: Dr

Contact Person First Name: Emanuele

Contact Person Last Name: Negrenti

Organisation Short Name: ENEA

Organisation Legal Name: Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile

WEB link to Organisation: www.enea.it

Address (Street, N, PO box, zip code): Via Anguillarese 301 – Rome 00123 - ITALY

Country: Italy

Contact Person Email: negrenti@enea.it

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Contact Person Phone n.: +39 0630484112

SHORT DESCRIPTION

TEE software estimates four direct impacts of road transport network: fuels and energy consumptions, pollutant emissions, noise emissions and accident occurrence.

The software includes original and advanced solutions for taking into account the kinematics of vehicles, the parking processes, the spatial and temporal distribution of cold starts. TEE relies on various databases that provide traffic emissions as functions of average speed or as functions of instantaneous emissions.

The software can virtually be coupled with any kind of transport model in view of the number of options for describing the fleet and the behaviour of vehicles.

TEE can be used for developing Traffic Urban Plans, Mobility Plans, Emissions Inventories, Assessment of Road Infrastructures.

TEE can be considered an E&H DST since it provides significant output concerning three major impacts of traffic on health: air pollution, noise, accidents.

DST No.: 80

DST name: TRANDI

DST category: Software

Contact Person Title: Dr

Contact Person First Name: Emanuele

Contact Person Last Name: Negrenti

Organisation Short Name: ENEA

Organisation Legal Name: Agenzia Nazionale per le Nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile

WEB link to Organisation: www.enea.it

Address (Street, N, PO box, zip code): Via Anguillarese 301, Rome 00123, ITALY

Country: Italy

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WEB link or other reference of the DST: n.a.

Contact Person Phone n.: +39 0630484112

SHORT DESCRIPTION

TRANDI software provides estimates of TRANsport Direct Impacts (Consumptions, Emissions, Noise, Accidents) with reference to multi-modal (road + rail + waterborne + airborne) transport networks. The software represents an 'evolution' of the COMMUTE Tool produced as prototype at the end of the EC FP4 COMMUTE Project (1996-2000). The tool considers the 4 modal networks made with 'links' and 'nodes' (cities, ports, airports). The planned applications are: regional transport plans, corridors assessment, major infrastructures environmental assessment.

TRANDI can be considered an 'E&H DST' since it provides significant output concerning three major impacts of traffic on health: air pollution, noise, accidents.

DST No.: 84

DST name: Finnish National Air Quality Portal

DST category: web service

Contact Person Title: Dr

Contact Person First Name: Virpi

Contact Person Last Name: Tarvainen

Organisation Short Name: FMI

Organisation Legal Name: Finnish Meteorological Institute/Ilmatieteen laitos

WEB link to Organisation: <http://www.fmi.fi>

Address (Street, N, PO box, zip code): Erik Palmenin aukio 1, P.O.Box 503,
FI-00101 Helsinki

Country: Finland

Contact Person E-mail : virpi.tarvainen@fmi.fi

Contact Person Phone n.:

SHORT DESCRIPTION

The air quality portal is a web service providing real time information on air quality in Finland. The service is free and open for all, and is provided in Finnish, with the core content also available in Swedish and English. The service includes an Air Quality Index, Measured Concentrations of regulated air pollutants, Limit Exceedance reports, and prediction of the dispersion of forest fire plumes. The Finnish language version also provides information about Air Pollutants and Measuring Air Quality.

WEB LINK or other reference of the DST <http://www.airquality.fi>

DST No.: 85

DST name: ESCAPE

DST category: software

Contact Person Title: N/A

Contact Person First Name: Juha

Contact Person Last Name: Nikmo

Organisation Short Name: FMI

Organisation Legal Name: Finnish Meteorological Institute/Ilmatieteen laitos

WEB link to Organisation: <http://www.fmi.fi>

Address (Street, N, PO box, zip code): Erik Palmenin aukio 1, P.O.Box 503,
FI-00101 Helsinki

Country: Finland

Contact Person E-mail: juha.nikmo@fmi.fi

Contact Person Phone n.:

SHORT DESCRIPTION

ESCAPE evaluates the releases, source terms and atmospheric dispersion of hazardous materials. The model is applicable to both continuous and instantaneous releases of toxic and flammable gases into the atmosphere.

WEB LINK or other reference of the DST:

http://www.fmi.fi/research_air/air_55.html.

DST No.: 86

DST name: Action-plan

DST category: Decision support procedure

Contact Person Title: Dr

Contact Person First Name: Hans

Contact Person Last Name: Keune

Organisation Short Name: University of Antwerp

Organisation Legal Name: Faculty of Political and Social Sciences, University of Antwerp-Belgium

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Country: Belgium

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SHORT DESCRIPTION

In the framework of the Flemish Centre of expertise for Environment and Health, medical, environmental and social scientific experts and policymakers cooperatively developed a prioritization procedure (called action-plan) for setting policy priorities with regard to environment & health research results. Next to environment and health aspects, also policy and social aspects are taken into account resulting in three main assessment criteria. To deal with these incommensurable assessment criteria, we make use of a multi criteria assessment method. The multi criteria analysis is based on a combination of desk research and expert consultation: experts specialized within the domain of one of the main criteria interpret the related desk research information. The outcome of the multi criteria analysis on all criteria is the basis for a stakeholder discussion and will result in a stakeholder advice to decision makers.

For more information:

<http://www3.interscience.wiley.com/journal/122222075/abstract>

or contact Hans Keune.

DST No.: 90

DST name: SYM'PREVIUS

DST category: Software

Organisation Full Name: ADRIA Development

WEB link to Organisation: www.symprevius.org

Country: France

E-mail : olivier.couvert@adria.fr

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SHORT DESCRIPTION

Sym'Previus is a software for safer food which automatically estimates recipes and thermal processes using predictive microbiology approach. It is composed of databases and simulation tools using available parameters:

- major food-borne pathogens: *Escherichia coli*, *Listeria Monocytogenes*, *Staphylococcus Aureus*, *Bacillus Cereus*, *Clostridium Perfringens*, *Salmonella*....;
- spoilage micro-organisms: *Pseudomonas*, *Bacillus*, *Enterobacter*, *Serratia*.....;
- food products: dairy, meat, seafood, vegetable, ready-to-eat...
-

Sym'Previus allows a tailor-made approach using your own parameters i.e. targeted micro-organisms in the food products.

DST No.: 91

DST name: SIM – E&H

DST category: Software

Contact Person Title: Prof. Dr

Contact Person First Name: Daniela

Contact Person Last Name: VASILIU

Organisation Full Name: Univ. Politehnical of Bucharest

Power Engineering Faculty; Environmental Informatics Laboratory

Address (Street, N, PO box, zip code): Splaiul Independentei, 313,
060042, Bucharest

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WEB link to Organisation: <http://www.environheal.pub.ro/portal/>

Contact Person E-mail : vasiliu@hydrop.pib.ro; vasiliu1958@gmail.com

Phone n.: +40 0040213169645

SHORT DESCRIPTION

SIM-E&H – Integrated Monitoring and Response System in Environment and Health SIM – E&H. IT Tool for the environmental and health knowledge dissemination. It is a comprehensive system of collection, processing and evaluation of information on environmental contaminants and their effects on population health, based on knowledge management principles.

The system SIM-E&H promote an integrated approach of the causal connection between environment and health, and a modern information system based on WEB SERVER technology.

The aim of SIM-E&H is to provide high quality information for decision-making by the authorities in the field of health care policy, health risk management and control, environmental protection, and for the population.

DST No.: 93

DST name: AirQ

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Hans-Guido

Contact Person Last Name: Mücke N/A

Organisation Short Name: Umweltbundesamt, WHO Collaborating Centre for Air Quality Management and Air Pollution Control

Organisation Legal Name:

WEB link to Organisation:

<http://www.umweltbundesamt.de/whocc/titel/titel21.htm>

Address (Street, N, PO box, zip code): N/A

Country: Germany

Contact Person E-mail: Hans-Guido.muecke@uba.de

Contact Person Phone n.: n/a

SHORT DESCRIPTION

Air quality health impact assessment software AirQ2.2

AirQ 2.2 consists of two independent parts:

- Estimation of effects of short-term changes in air pollution (based on risk estimates from time-series studies);
- Estimation of effects of long-term exposures using life-tables approach and based on risk estimates from cohort studies.

For each part, separate HELP files explain details of calculation and provide examples of the program application. Methodological principles of the procedure and scientific basis for the risk estimates are summarized in the WHO documents Quantification of health effects of exposure to air pollution and Health aspects of air pollution with particulate matter, ozone and nitrogen dioxide.

Current version: AirQ2.2.3, 14 Sept 2004

WEB LINK or other reference of the DST

http://www.euro.who.int/air/activities/20050223_5

DST No.: 94

DST name: CEHP (Children's Environmental Health Profile)

DST category: Software

Contact Person Title: N/A

Contact Person First Name: Corra / Monti

Contact Person Last Name: Lilian / Veronica

Organisation Short Name: Argentine Society of Doctors for the Environment (AAMMA)

Organisation Legal Name:

WEB link to Organisation: www.aamma.org

Address (Street, N, PO box, zip code): N/A

Country: Argentina

Contact Person E-mail: lcisde@arnet.com.ar / veronicamonti@aamma.org

Contact Person Phone n.: n/a

SHORT DESCRIPTION

The *Profile of Children's Environmental Health in Argentina* is the result of this comprehensive process of expert consultation and review, designed to ensure accuracy, reliability and overall usefulness.

The process of developing the *Profile* began in 2004 with a review of models and indicator frameworks that hold the child at the centre – that is, those that consider children's environmental health based on children's developmental stages, their lives and experiences. It was agreed that the chosen model must consider at least four things: the context of children's lives; their unique exposure to environmental hazards; their health and developmental well-being; and the actions that can be taken to protect them.

The Multiple Exposure-Multiple Effect (MEME) Model was found to be a widely recognized model for describing children's environmental health indicators. It has been used in *Making a Difference: Indicators to Improve Children's Environmental Health*, WHO, Geneva (2003); *From Theory to Action: Implementing the WSSD Global Initiative on Children's Environmental Health Indicators*, WHO, Geneva, (2004) and in *Children's Health and the Environment in North America - A First Report on Available Indicators and Measures*, Commission for Environmental Cooperation (CEC) prepared in collaboration with IJC - HPTF, PAHO, WHO, and the Governments of Canada, Mexico and the United States. Montréal, Canada, (2006).

The MEME framework from Briggs 2003 demonstrates that individual exposures can lead to many different health outcomes, and that specific health outcomes can be attributed to many different exposures. The MEME framework indicators are organized into four categories: context, exposure, health outcomes and action indicators.

The *Profile* provides an opportunity for multi-sectoral partners to include their information in a meaningful way that will allow us to start seeing the connections.

The *Profile also* reports on what information was found but also highlights where more research or additional work should be focused.

The English version can be downloaded: http://www.aamma.org/wp-content/uploads/2009/05/profile_of_children_environmental_health_in_argentina_sanaprofile_englishversion.pdf

DST No.: 96

DST name: Assessment follow-up at 5 years of age

DST spec. Category How to assess children of 5 years old for motoric and cognitive functioning

Contact Person Title: Prof. Dr

Contact Person First Name: Janna

Contact Person Last Name: Koppe

Organisation Short Name: Ecobaby

Organisation Full Name: Stichting Ecobaby

WEB link to Organisation: Address (Street, N, PO box, zip code):

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City: Loenersloot

Country: Netherlands

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Contact Person Phone n. +31 294291589

SHORT DESCRIPTION

Assessment follow-up at 5 years of age:

Validated Test batteries for motoric and cognitive development in 5 year old children.

Introduction:

In the Netherlands in 2005 validation results are published how to test 5 year old children for their motoric and cognitive development and more specific the group of prematurely born babies. (MJK de Kleine PhD thesis 2005 Leiden: Follow-up assessment of very preterm infants at five years of age.)

The validation took place in a group of 431 not severely handicapped premature babies (gest age mean of 30 weeks).

Methods:

For motoric development a comparison was done between paediatric assessments, The Movement Assessment Battery for Children. Ref: Henderson SE, Sugden DA, San Antonio. Psychological Corporation, 1992. (Movement ABC), The complete Denver Development Screening Test (DDST) that addresses four domains: adaptive behavior, social development, language development and motoric development. (Ref: Cools ATM, Hermans JMA DOS handleiding. Denver Ontwikkeling Screening test: Lisse: Swets and Zeitlinger, 1979). (Shortly DDST) and Touwen neurological examination. Touwen neurological examination test. Ref: Touwen BC. Examination of the child with minor neurological dysfunction. Clinics in Developmental Medicine 1989;11:353-63

Result:

The Movement ABC is best.

Second best were DDST and TOUWEN. The paediatric assessment was not good at all.

For cognitive development:

For cognitive development a comparison was done between paediatric assessment, DDST, formal IQ test, school performance (need for remedial teaching or special school) and a Dutch Language screening test.

Result:

The complete DDST in combination with school performance gives the most reliable results.

The formal IQ test (RAKIT) correlated good with the Dutch language test. (Ref: Bleichrodt N, Resingh WCM, Drenth PJD, Zaal JN. Intelligentie-meting bij kinderen: empirische en methodologische verantwoording van de geReviseerde Amsterdamse Kinder Intelligence Test. Lisse: Swets and Zeitlinger, 1987.)

School performance (remedial teaching and special school) was also found to be a good predictor in a study by Saigal e.a. Ref: Saigal S., den Ouden AL, Wolke D e.a.: School-age outcomes in children who were extremely low birthweight from four international population based cohorts. Pediatrics 2003; 112(4):943-50.

Janna G. Koppe.

DST No.: 97

DST name: Definition intra-uterine growth retardation (IUGR)

DST spec. Category

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SHORT DESCRIPTION

Definition Small for Gestational Age (SGA) and Intra-Uterine Growth Retardation.

Introduction:

There is a need to define SGA better.

Following WHO the definition is: all children under the tenth percentile. However many normal children are then included, that dilute epidemiologic outcomes.

Prenatal damage results often in real growth retardation.

What is IUGR?

There are two forms of IUGR. 1: a balanced proportional decrease in growth, as is taken place in an adverse environment during the whole pregnancy or 2: a disproportionate growth restriction as is seen when food supply is short during the last trimester. The term IUGR can only be used when a reduced fetal growth velocity can be documented by repeated prenatal ultrasound measurements and /or a specific cause for it can be identified. Thus a child who is born SGA frequently has not suffered from IUGR, and infants born after a short period of IUGR are not necessarily SGA.

Recommendation SGA consensus conference:

Ref: Clayton PE e.a. Management of the child born too small for gestational age through to Adulthood: a consensus statement of the International Societies of Pediatric Endocrinology and the Growth Hormone Research Society. J.Clin Endocrinol Metab 2007; 92:804-810.

Definition of SGA:

An accurate definition of SGA can be made if: gestational age is known, best based on the date of conception or on a first trimester ultrasound examination, 2: measurements of birth weight, birth length and head circumference performed by trained personnel following standardized procedures and the results must be

compared with population-specific, updated reference tables allowing to specifically classify children as appropriate for gestational age (AGA) or SGA, according to the cut-off chosen.

During perinatal care the 10th percentile for bodyweight is most often used to define a newborn as SGA. (WHO-definition)

The consensus is now to define a newborn as SGA if birth weight and/or birth length is less than -2 SD for gestational age, using population specific standards for growth long term outcome.

Customized Growth Charts:

In these charts physiologic factors known to affect growth, i.e. birth weight and length are adjusted for like maternal height, maternal weight in early pregnancy, parity and ethnic origin as well as the sex of the baby. (Ref: Gardosi J: New definition of small for gestational age based on fetal growth potential. *Horm Research* 2006;65 (suppl 3):15-18).

This DST is mainly based on a chapter written by Hartmut A.Wollmann in: *Small for Gestational Age, Causes and Consequences*, editors: W.Kiess, S.D. Chernausek, A.C.S. Hokken-Koelega. *Pediatric And Adolescent Medicine*, vol 13. Karger. Title of chapter: *Children born Small for Gestational Age: Definitions and Etiology*. PP 1-4.

Janna G. Koppe

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